HISTORIC AMERICAN ENGINEERING RECORD

Addendum to
Steam Schooner *Wapama*
(*Tongass*)

HAER No. CA-67

This report is an addendum to a 36-page historical report transmitted to the Library of Congress in 2001. That report included a history of the *Wapama*'s years in service and a physical description of the vessel. This report presents a history of the ship as a museum object between 1958 and 2011.

Location:	Kaiser Shipyard No. 3, Richmond, Contra Costa County, California
Type of Craft:	Steam schooner
Trade:	Coastal transport of lumber, passengers, and general cargo
Official Registry No.:	213092
Principal Measurements:	Length (overall): 216'-11" Beam: 42'-4" Depth: 19' Gross registered tonnage: 951 Net registered tonnage: 584 Horsepower: 825 (The listed dimensions are as-built, but it should be noted that draft, displacement, and tonnages were subject to alteration over time as well as variations in measurement.)
Propulsion:	Triple-expansion reciprocating steam engine, single screw
Dates of Construction:	Launched: January 20, 1915 Delivered: April 29, 1915
Designer:	James H. Price, master builder
Builder:	St. Helens Shipbuilding Company, St. Helens, Oregon
Original Owner:	Charles R. McCormick Lumber Company
Present Owner:	U.S. Department of the Interior National Park Service San Francisco Maritime National Historical Park
Names:	*Wapama* (1915–1938, 1959–present) *Tongass* (1938–1959)
Disposition:	Slated for salvage and dismantling, 2011

Significance:
The *Wapama* is the last steam schooner, a specialized type of wooden steamship developed on the Pacific coast at the end of the nineteenth century to carry lumber from the mills of Washington, Oregon, and northern California to markets in San Francisco and other cities. It is one of the nation's most significant artifacts embodying the economic importance and far-ranging impact of the Northwest lumber industry, for not only was the *Wapama* built in 1914–15 by a lumber company at the company's own shipyard for operation in the company's own freight service, it was constructed of the same old-growth wood it was designed to transport. The immense size of the vessel's timbers—some planks exceed 70' in length—and the use of extra wood framing in place of diagonal iron strapping to strengthen the hull, further demonstrate the magnificence of the trees then available and Americans' eagerness to use them. Altered in only minor ways during its years in service, the *Wapama* retains the majority of its original fabric and machinery, although its hull is now much decayed.

Like other steam schooners, the ship was manned predominantly by Scandinavian immigrants and carried general cargo and passengers as a side business. Laid up in 1947 because it was old and obsolete, the ship was collected and partly restored for public display by the state of California after 1958 in recognition of the "great historical importance" of steam schooners of its type. Despite seventeen years as a museum, sufficient funding was never available to fully restore the vessel, and it decayed. Placed on a barge in 1980 to protect it from sinking, it has remained there for thirty years while ever increasing preservation and restoration costs have kept its rescue beyond the reach of its caretakers.

During this time, the *Wapama* has become the last intact American coastwise passenger and cargo steamer, representing thousands of vessels of many types that were once the indispensible mainstays of commerce along the nation's coasts. The *Wapama* is one of just a handful of very large, historic wood vessels surviving in the United States, and, like the ferryboat *Eureka* that it was once displayed near, it is a rare surviving expression of the long persistence of wooden shipbuilding in the United States.

The *Wapama* was listed on the National Register of Historic Places in 1973. Its significance on the Register was expanded from regional to national through a revised nomination written in 1982, a step undertaken specifically to lay the groundwork for the eventual designation of the ship as a National Historic Landmark in 1985.

Author: Michael R. Harrison, 2011

Project Information: This addendum project, undertaken by the Historic American Engineering Record (HAER) in 2010, was sponsored by San Francisco Maritime National Historical Park (SAFR), Craig Kenkel, superintendent. Bill Doll, Preservation Specialist for SAFR, was the project manager. Documentation for HAER was directed by Todd Croteau, who also prepared the large-format photography and assisted with the production of drawings. Michael R. Harrison served as project historian. HAER architect Dana Lockett, Justin Barton of CyArk, and D'Arcy Trask of

Gauge Point Calibration, Inc. provided LiDAR services to create digital point clouds of the *Wapama*'s hull. Richard K Anderson prepared the final drawings through a cooperative agreement with the Council of American Maritime Museums.

PART I. HISTORICAL INFORMATION

Overview

The steam schooner *Wapama* was built in St. Helens, Oregon, and San Francisco in 1914–15 and laid up in Seattle in 1947 after a long career in combined cargo and passenger service. The old and worn ship was acquired by the state of California at the prompting of the San Francisco Maritime Museum in 1958 and partly restored for public display. Beginning in 1963, it formed one of the key exhibits at the San Francisco Maritime State Historical Park—a monument to the state's seafaring past—where it received routine topsides maintenance as well as bottom cleaning and repainting during occasional periods in dry dock. Funding for the park was always limited, and in 1977 the state transferred the ship with the rest of the resources of the maritime park to the care of the National Park Service. By this time, however, internal rot and wind- and wave-induced mechanical stress had severely weakened the *Wapama*'s original internal structure. To protect the ship temporarily while seeking funds for a structural restoration, the Park Service removed the *Wapama* from the water and placed it on a barge in 1980.

Although Park Service staff in California commissioned many surveys and studies of the *Wapama* over the next three decades seeking to better understand the ship's level of decay and to define and price options for its long-term preservation, the bureau never committed funding for more than minimal short-term stabilization and piecemeal upkeep. A volunteer maintenance effort that ran from 1984–92 and from about 1997–2000 as well as an experimental rot treatment carried out in 1988–89 slowed the ship's continued deterioration, but few meaningful steps were taken to restore it and return it to public display. In 1996, the administration of the San Francisco Maritime National Historical Park, as part of its formulation of a General Management Plan, decided to minimally maintain the *Wapama* without addressing its fundamental deterioration and then dismantle it when it became unsafe. While this action temporarily stimulated private fundraising and advocacy for the ship's preservation, these efforts were short-lived and insufficient to meet the vessel's needs. In 2011, the Park Service committed to dismantling the *Wapama* on its barge and salvaging its engine plant and selected other components for potential future display.

The steam schooner *Wapama*, 1915–58

The Charles R. McCormick Lumber Company ordered the *Wapama* from its subsidiary the St. Helens Shipbuilding Company in 1914, and the vessel was launched in early 1915 from the company's yard on Sauvies Island, St. Helens, Oregon. The hull was built of Douglas fir fastened with clinch bolts, spikes, and trunnels, while high-chafe areas were made of ironbark and the interior joinery was made generally of oak. The finished hull was towed to the Main Street Iron Works in San Francisco, California, where the engine plant was installed and interior completed. The *Wapama* was designed to carry lumber and passengers southward along the Pacific coast, and passengers and general cargo on return voyages northward. The ship served fifteen years in the lumber trade before being sold in 1930 to the Los Angeles–San Francisco Navigation Company, which employed the vessel in passenger and general freight service between its eponymous cities. The *Wapama* was sold again in spring 1937 to the Viking Steamship Company for an unsuccessful and short-lived passenger service, and then to the Alaska Transportation Company in late 1937. This last

company employed the ship, renamed *Tongass* in 1938, to carry freight and passengers between Seattle and a number of Alaskan ports. Old and worn, the vessel was laid up in mid 1947. The next year, Alaska Transportation sold the *Tongass* to Jack Mendelsohn and Son, a Seattle, Washington, salvage firm, for scrapping. Although various brass engine fittings were removed, the vessel itself was not scrapped, but lay without maintenance at the St. Vincent de Paul Dock for the next decade.[1]

San Francisco Maritime State Historical Park

In 1950, a group of California maritime enthusiasts, led by Karl Kortum and supported by the publishers of the city's four major newspapers as well as sugar heiress Alma Spreckels, formed the private non-profit San Francisco Maritime Museum Association for the purpose of preserving and displaying the region's maritime heritage. The association opened the San Francisco Maritime Museum in the city-owned Aquatic Park Bathhouse the next year (see HABS No. CA-2225). Kortum, the museum's first curator and director, was keenly interested in preserving actual vessels representing the maritime history of the Pacific coast. In 1952, the association announced plans for "Argonaut Bay," Kortum's scheme to develop Aquatic Park into "a living outdoor museum" interpreting San Francisco's heritage of ships, railroads, and cable cars. As a first step toward this vision, the association acquired the steel-hulled sailing vessel *Pacific Queen* in 1954 for restoration and display. Returned to its original look and name, the *Balclutha* opened at the city's Pier 43 in 1955 (see HAER No. CA-54).[2]

Kortum next hoped to collect examples of a sailing lumber schooner and a steam schooner, two regional types specifically associated with the historically important Pacific Coast lumber trade. A few hulls survived to represent the former, but the *Tongass* (ex *Wapama*) was the only restorable steam schooner. Unable to collect, restore, and preserve any additional large vessels with the museum association's limited funds, Kortum argued that a lumber schooner and a steam schooner should be preserved using state funds and displayed as state landmarks. The leadership of the museum association, with help from labor leader Harry Lundeberg, succeeded in convincing the state of California to purchase two ships using tidelands oil royalties (payments from the lease of public lands for commercial

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[1] For the early history of the *Wapama*, see Glenn E. Burch, *S.S. Wapama: A History* (San Francisco Maritime State Historical Park, n.d.), copy at J. Porter Shaw Library, San Francisco Maritime National Historical Park [**SAFR**]; James P. Delgado, *Revised National Register Nomination for Steam Schooner Wapama*, Dec. 17, 1982; Marc E. Porter, "Addendum to Steam Schooner *Wapama*," HAER No. CA-67, Historic American Engineering Record (HAER), National Park Service, U.S. Department of the Interior, 2001.

[2] San Francisco Maritime Museum, "How San Francisco Can Capitalize on the Glory of Her Port," fundraising prospectus, San Francisco Maritime State Historical Park Records (HDC 650), SAFR [hereafter cited as **SFMSHP records**], series 12, folder: "Scrapbook, 1955–1963, 2/3"; "Statement of David E. Nelson, Assistant Director of the San Francisco Maritime Museum Association," Aug. 9, 1971, in U.S. Congress, House, Committee on Interior and Insular Affairs, Subcommittee on National Parks and Recreation, *Hearings on Golden Gate National Recreation Area*, 92d Cong., 1st and 2d sess., 1971–72, 88–90; "Statement of Jean Kortum, San Francisco, CA," in U.S. Congress, Senate, Committee on Energy and Natural Resources, Subcommittee on Public Lands, National Parks and Forests, *Hearing on Maritime Museum; Stones River National Battlefield; Western Historic Trains Center; and Pinelands National Reserve Visitors Center*, 100th Cong., 1st sess., Oct. 6, 1987, 118–22; Steven E. Levingston, *Historic Ships of San Francisco* (San Francisco: Chronicle Books, 1984), ch. 1.

drilling) and to establish a state maritime memorial park adjacent to the Maritime Museum. The museum association first approached state officials in 1954, and the legislature passed the bill establishing the park at Hyde Street Pier and appropriating $200,000 for the purchase of the *Tongass* and the schooner *C. A. Thayer* (see HAER No. CA-61) in 1955.[3]

The successful partnership with the state and other political developments in San Francisco encouraged the museum to repackage its "Argonaut Bay" plans into a master plan Karl Kortum promoted as "Project X." This plan provided leverage for Kortum and others to advocate for the preservation of additional historic vessels. Although the state maritime park was established specifically for just the two lumber vessels, other worthy watercraft were soon identified, and the Maritime Museum orchestrated the donation of the railroad ferry *Eureka* (see HAER No. CA-59) to the park's collection in March 1959 and the acquisition of the scow schooner *Alma* (see HAER No. CA-60) the following July. Further additions came over time, but these four vessels formed the core collection held by the San Francisco Maritime State Historical Park when it opened to the public in 1963.[4]

Collecting the *Wapama*

The San Francisco Maritime Museum provided the specialist knowledge and professional contacts needed to collect the *C. A. Thayer* and *Tongass*, while the state provided the money. The *Thayer* was purchased first, for $25,450, in 1957, and sailed down from Seattle after initial repairs. While negotiations proceeded with Jack Mendelsohn and Son, the owners of the *Tongass*, work on the *Thayer* consumed most of the state's initial $200,000 appropriation. Additional money had to be sought for the steam schooner's purchase and repair. The state of California's Division of Beaches and Parks approved the purchase details for *Tongass* in December 1957 and secured $210,000 in additional state money on January 9, 1958 to cover acquisition, preliminary repairs, and towing. The sale was concluded, at a price of $16,000, a few days later.[5]

The decision to purchase the *Tongass* was based on a number of inspections and surveys made by museum staff and their agents over the span of a few years. The first official visit on record was led by Karl Kortum. As described in a press release,

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[3] The *C. A. Thayer* was the park's leading candidate for a lumber schooner to save, but the association also considered collecting the *Wawona*, the *Fox* (ex *Allen A.*) and the *Metha Nelson*. Draft of California Assembly bill no. 3689, Jan. 21, 1955, SFMSHP records, series 12, folder: "Scrapbook, 1955–1963, 1/3"; Harlan Trott, "San Francisco's Maritime Valhalla," *Christian Science Monitor*, Oct. 30, 1963, 9.

[4] "S. F. Historic Center Park plan p[r]oposed," *San Francisco Call-Bulletin*, Dec. 12, 1956, 28; William Thomas, "City will consider historical center at Aquatic Park," *San Francisco Chronicle*, Dec. 16, 1956, 10; SAFR, *Draft General Management Plan / Environmental Impact Statement*, June 1996, 4, copy at National Park Service, Denver Service Center.

[5] "Misc. Background on SFMSHM," notes sheet, SFMSHP records, series 12, folder: "Scrapbook, 1955–1963, 2/3"; "Purchase of ship for museum OK'd," *San Francisco Examiner*, Dec. 21, 1957, 6; "Purchase of schooner for museum OK'd," *San Francisco Examiner*, Jan. 10, 1958, 16; "Steam schooner Tongass to be exhibit in S.F.," *Sacramento Times*, Jan. 10, 1958.

> In October of 1955 Karl Kortum, Director of the San Francisco Maritime Museum, examined the steam schooner WAPAMA which was then tied up behind St. Vincent de Paul's in Seattle among a discouraging array of rotting wooden ships. To the unexperienced eye she appeared hopeless; her paint cracked and peeling, her rigging in shambles, her interior dark and dismal—yet a marine survey pronounced her basically sound . . . .[6]

Kortum later recalled, "We were very lucky that during the entire state appropriations process no one from the legislative analyst's office had gone up to take a look at the *Wapama*. Although the vessel was in good shape considering its age, cosmetically it looked terrible. If they had seen how bad the boat looked, they never would have bought it."[7]

Marine surveyor Captain Adrian F. Raynaud surveyed the *Tongass* in July 1957, while negotiations for purchase were underway, "to determine whether or not this vessel could be made sufficiently seaworthy to be towed to San Francisco, California and restored to a condition considered as safe and sightly enough to be placed on exhibition as a museum vessel." He found the vessel well built, with "exceptionally heavy" wood construction that lent the hull "extreme strength." At the same time, the ship had been "thoroughly looted and vandalized" during its nine years' layup, and it was weathered and leaky from complete lack of maintenance. Leaks and pooling water caused by gaps in the fabric and broken windows and doors had led to rot in the superstructure, the stern, the forecastle, and the engine room. The engine plant was in poor condition from stripping, looting, and atmospheric damage. "The entire vessel . . . will require very extensive refurnishing and refitting," he concluded. In his opinion, the vessel could be made sound for towing to San Francisco, and it was "basically sound enough to warrant extensive repairs and replacements to restore it" for use as a museum display. Three months later, the ship was moved to a dry dock at the Lake Union Drydock Company to allow the bottom to be inspected. This was the ship's first haul-out since June 1947. Although a 16" hog (upward bend) was measured in the keel—worrisome, but not extreme for a wood vessel of the *Tongass*'s age—nothing additional was discovered to prevent the state purchasing the ship.[8]

After the sale was concluded, Captain Raynaud oversaw initial repairs to the *Tongass* in Seattle. The vessel was dry-docked again for two weeks in August and September 1958 at the Puget Sound Bridge and Dredging Company, where the old masts were removed and the bottom inspected, cleaned, and repaired. The work done to the *Tongass* at this time was the minimum necessary to make the ship seaworthy for towing to California, and it consisted in large measure of caulking the hull and painting.[9] "The paint work is

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[6] Joan McIntyre, press release draft, n.d. [ca. 1961], SFMSHP records, series 12, folder: "Scrapbook, 1955–1963, 1/3."

[7] "The Wapama may yet ply the water again," *San Jose Mercury News*, Feb. 28, 1984, 2D.

[8] A. F. Raynaud, "Survey Report, S.S. 'Tongass' General Condition, Seattle, Washington," July 16, 1957, J. Porter Shaw Library, binder: "Wapama—Restoration (photos)." The October 1957 dry-docking is mentioned in "Puget Sound Bridge and Dredging Company. Ship Repair Order," Aug. 12, 1958, J. Porter Shaw Library, binder: "Wapama—Restoration (photos)."

[9] "Puget Sound Bridge and Dredging Company. Ship Repair Order," Aug. 12, 1958.

camouflage," Captain Raynaud admitted to museum curator Roger Olmsted, "but will serve to make the vessel sightly, and also to preserve it to some extent, until work is undertaken to restore it properly. . . ." He continued,

> The cost of restoring the vessel will be high, and there is no point in trying to minimize it, or to skimp on the work to be done. The hull will need work too, but it is not too bad, and, if kept painted, can stand a few more years without extensive work. I have done only enough here to tow the vessel to San Francisco and to make her sufficiently presentable to get through the Golden Gate, and this will not last long.[10]

The *Wapama*, as the Maritime Museum quickly renamed the ship, was towed from Seattle to Pier 1E in Oakland, California, in October 1958. Harry Dring, a close friend of Karl Kortum and the foreman hired to oversee the restoration of the state historical park's ships, later recalled that the steam schooner arrived with 8' of water in its engine room.[11]

Restoring the *Wapama* for display, 1959–63

Restoration of the *Wapama* began in May 1959 and lasted until the fall of 1963. The project was directed by the staff of the San Francisco Maritime Museum, who did all necessary historical research, major report writing, and interpretive planning, while the state paid for all supplies and materials and hired Harry Dring and his crew of shipwrights and laborers. Most of the work was carried out while the ship was moored at the Oakland Dock and Warehouse Company. During the first season, the decayed areas of the superstructure and forecastle were demolished and the vessel made comparatively watertight before winter. This left the ship in a stable condition while men and resources were focused on the *Thayer*. Over the next three years, the work on the *Wapama* was prioritized within three broad categories: 1) making the decks watertight "to prevent rapid future deterioration"; 2) restoring the most characteristic parts of the ship, such as the engine and the cargo-handling gear; and 3) making the ship presentable and realistic.[12] This scheme translated into:

- Removal and replacement of the after half of the original boat-deck house.
- Restoration of the boat deck, forecastle decking, bridge wings, wheelhouse, and other areas so decayed when the ship was collected that Captain Raynaud warned they were unsafe to walk on.[13]

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[10] A. F. Raynaud to Roger Olmsted, Sept. 15, 1958, J. Porter Shaw Library, binder: "Wapama—Restoration (photos)."

[11] Harrison (Harry) J. Dring (1919–1989), a sailor who joined the Maritime Museum in 1955 to work on the *Balclutha*, was the state historical park's restoration and maintenance supervisor. Along with the *Wapama* work, he oversaw the restoration of the *C. A. Thayer,* the *Eureka*, and the *Alma*. "Supplemental Detail Steam Schooner WAPAMA," Mar. 1978, 3, Harrison Dring Papers (HDC 648), SAFR [hereafter cited as **Dring papers**], series 13, folder 4.

[12] San Francisco Maritime Museum, *Restoration of the Steam Schooner Wapama. Report #1 to the State of California, Division of Beaches and Parks, on the History and Restoration of the Wapama*. January 1960, 14, copy in J. Porter Shaw Library.

[13] A. F. Raynaud to Roger Olmsted, Sept. 15, 1958.

- Removal of reefer boxes and 'tween decks in the cargo hold, as well as other "unsightly additions to the original structure."[14] Many changes were made based on interviews with former crew members.[15]
- Fresh paint topsides.[16]
- Replacement of masts and spars, which were stepped and rigged in May 1961. The new masts were fashioned from timber cut in the Snoqualmie National Forest.[17]
- Replacement of the deck companionways to a less steep design to improve safety for visitors.[18]
- Installation of exhibits. An plan for interpreting the ship was developed for the park by San Francisco Maritime Museum staff in early 1963 and fabricated and installed in time for the dedication of the ship on October 2, 1963.[19]

The engine was in a partially dismantled state when the ship was collected, with many of its brass parts removed for scrap and other components pilfered. It was partly restored with parts salvaged from other, derelict vessels, including brasses, linkages, copper piping, and other bits from the hulk of the steam schooner *Celilo* (a McCormick Company running mate) and additional parts from tug *W. B. Storey*. Some missing steam pipework was dummied up with empty tubular runs of insulation.[20]

One other salvaged component added during the restoration was a capstan formerly used in the San Francisco Municipal Railway's Washington-Mason cable powerhouse, donated to the project in 1962. The *Wapama* also featured imitation-leather seat cushions in certain passenger compartments made in the workshops of Soledad Prison.[21]

The *Wapama* was dry-docked three times during the restoration. First, the bottom was cleaned, inspected, minimally patched, and painted at the Moore Dry Dock Company over the span of a few days in July 1959. Although the small amount of worm damage that was

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[14] Roger Olmsted to Lloyd Lively, June 3, 1959, Dring papers, series 13, folder 26.

[15] See for example, "Notes on survey of WAPAMA 6 Apr 59 with Neils [*sic*] Romberg," Dring papers, series 13, folder 29, which also appears in *Restoration of the Steam Schooner Wapama*, 41–44.

[16] Invitation to bid on ship painting, Aug. 22, 1960, Dring papers, series 13, folder 1.

[17] Division of Beaches and Parks, Invitation to bid on stepping masts and attaching booms, Nov. 23, 1960, Dring papers, series 13, folder 1; "Loading the masts for the WAPAMA, Snoqualmie Notional Forest, December 1958," Marine Lumber Service photograph, J. Porter Shaw Library, binder: Wapama—Restoration (photos).

[18] H. J. Dring to Richard Mayers, Jan. 8, 1976, Dring papers, series 13, folder 29.

[19] Karl Kortum to Jess T. Chaffee, Apr. 5, 1963; "Display Proposal for Steamer Schooner Wapama," Apr. 5, 1963; H. J. Dring, memo to Chaffee, Apr. 10, 1963; John H. Michael to Chaffee, May 14, 1963; "Display Proposal for Steamer Schooner Wapama [revised]," May 15, 1963; Chaffee to Kortum, May 17, 1963; Chaffee, memo to Michael, June 20, 1963; "Interpretive Displays / Steamschooner *Wapama*," itemized schedule with costs, 1963, all Dring papers, series 13, folder 6.

[20] *Restoration of the Steam Schooner Wapama*, 36; Roger Olmsted to Lloyd Lively, June 1, 1959; Christopher Leggo to Jess Chaffee, Sept. 22, 1959; H. J. Dring to Mr. Herring, the Learner Co., Oct. 26, 1959; Leggo to Dring, Mar. 25, 1960, all Dring papers, series 13, folder 6.

[21] Victor C. Peterson to V. W. Anderson, Apr. 12, 1962, and Wayne Cox, memo to San Francisco Maritime SHM, May 24, 1962, both Dring papers, series 13, folder 7.

found was burned out and plugged with cement, the 16" hog in the keel was allowed to remain, and problem planks were noted for future replacement. The ship was dry-docked again in mid 1961, this time at the Bethlehem Steel yard, for a repeat hull cleaning, repainting, and minor hull repairs. The outboard portion of the tailshaft, to which the propeller had once been attached, was cut off flush and the bearing capped to prevent leakage. Finally, in early 1963, the *Wapama* went to Martinolich Ship Repair Company for a final bottom cleaning and painting before going on public view. Some keel shoe and rudder repairs were made at this time. [22]

Significant restoration of the hull was not a part of the ship's refurbishment. The San Francisco Maritime Museum's first project report to the state, presented in January 1960 while the work was still in early days, explained,

> The salient fact in the restoration of the WAPAMA is that there is not enough money available to do an entirely complete job, either from the viewpoint of a naval architect or from the standpoint of a public display . . . .
>
> Limited funds make it imperative that expenditures which will not "show up," which will not add to the display value of the ship, be scrutinized most carefully. At the same time great care must be exercised in avoiding a "penny wise" policy which offers maximum initial display value at the risk of uncomfortably rapid deterioration of the essential structure of the ship . . . .
>
> [T]he contemplated restoration program is designed to result in not only a sound display, but in as sound a ship as possible, and short-run goals are not to be achieved at the expense of long-term economy.[23]

The report's author neatly summed up the conflicting choices facing the project:

> The purpose of restoring the WAPAMA as a public display is not of necessity consistent with preserving the vessel from further deterioration: for example, renewal of the forecastle decking adds nothing to the historic or display value of the ship, while restoration of the main engine will not add one day to her life.[24]

In order to preserve its ships in the long term, the park would have to hire sufficient staff to keep abreast of ongoing maintenance and tackle future repairs.

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[22] *Restoration of the Steam Schooner Wapama*, 49–50; Moore Dry Dock Company, invoice 20494 to Steam Schooner *Wapama* and owners, July 23, 1959; State of California, contract with Bethlehem Steel Company, Shipbuilding Division, Apr. 20, 1961; Invitation to bid on dry-docking and bottom maintenance, Oct. 2, 1962; State of California, contract with Martinolich Ship Repair Co., Oct. 24, 1962, all Dring papers, box 9, series 13, folder 1.

[23] *Restoration of the Steam Schooner Wapama*, 11.

[24] *Restoration of the Steam Schooner Wapama*, 13.

> [I]t is apparent that an overly doctrinaire approach to the distinction between restoration and maintenance can lead only to confusion; these ships are *never* going to be "finished," and the day will never be reached when it will be possible to relax and run a simple "maintenance" operation.
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> The present program [for all the ships] will fall far short of complete restoration, and is designed only to present the ships to the public as an adequate display. The permanent crew must be adequate to carry work forward, and to keep up with the deterioration of portions of the vessels which are not now so bad as to require repair.[25]

The author concluded, "If the maintenance and display phases of the Old Ships Program [are] to succeed, a *small* restoration program is going to have to turn into a *big* maintenance program."[26]

The *Wapama* at Hyde Street Pier, 1963–79

The San Francisco Maritime State Historical Park opened to the public on October 2, 1963. Historian James Delgado has described the *Wapama* as "a favorite attraction in the popular park, which often hosted as many as 230,000 visitors [per year]."[27] The San Francisco Maritime Museum–developed visitor interpretation aboard the ship comprised restored passenger and crew spaces dressed with period props and artifacts, reader panels and display boards, and audio programs that presented dramatic stories based on interviews with former sailors and passengers. Twelve interpretive paintings by artist Joseph S. Cleary depicting passengers and crew engaged in typical onboard activities appeared throughout the ship. A thirteenth painting was added in 1974 when the artist restored the original dozen.[28] During the summer, a concessionaire sold visitors food prepared in the ship's galley, an activity which created enough wear and tear that the original galley stove had to be replaced in 1975.[29]

Delgado also notes that at Hyde Street Pier "the *Wapama* underwent additional restoration by the park's trained shipwrights in a piecemeal fashion." Harry Dring and his staff did the

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[25] *Restoration of the Steam Schooner Wapama*, 53–54.

[26] *Restoration of the Steam Schooner Wapama*, 55.

[27] Delgado, *Revised National Register Nomination*, p. 8.5.

[28] See footnote 19. James E. Neider to Robin L. Holmes, Sept. 23, 1974, Dring papers, series 13, folder 7. The audio programs originally played in individual compartments. Later, a self-guided audio tour was developed. A 1972 park brochure noted, "To help you learn about these historic ships, a BY-WORD system has been installed. As you view the ships' engines, cabins, and displays, a small wireless headset will tell you about them and about the days when the ships were in active service in California's waters and along her coasts, narrations dramatized by sounds of creaking timbers, steam whistles, and the cries of seagulls." "The Wapama is one of San Francisco's historic ships . . . ," brochure for the San Francisco Maritime State Historical Park, 1972, J. Porter Shaw Library, pamphlet files, file: "Wapama (Museum ship)."

[29] R. E. Mackey to Steven W. Hastings, Mar. 12, 1975, and "A search for replacement stoves has been conducted . . . ," memo draft, ca. 1975, both in Dring papers, series 13, folder 7.

most they could with the money available to them and kept the ship very presentable, but they never had enough to undertake serious structural work, aside from occasional planking repairs made during periods in dry dock. Although "the capability of doing important work above the waterline is well within the skills and staffing of the Park," Dring pointed out in one report, it "cannot be undertaken due to the surge and wind conditions at the Hyde Street Pier. . . . The ship is in constant motion, precluding the use of a float or staging."[30]

San Francisco Bay is prone to extreme currents and seasonal storm swells, and the vessels docked at Hyde Street Pier are exposed to prevailing westerly winds, daily tides, and the wakes of passing ships. (The construction of a breakwater in 1985–86 reduced the impact of wakes and surges, but did not eliminate the wind and tides.) The *Wapama* was secured in its berth by "outsize" mooring lines run to the pier and two 8,000-lb bow and stern anchors set in the water, and the constant motion produced by wind and water placed a substantial strain on the old hull. Little work had been done to strengthen the *Wapama*'s structure before the vessel was placed on exhibit, and rot present in the ship's timbers when it was collected had spread while it lay at its berth, making the ship particularly susceptible to damage from mechanical stress. Serious deterioration began to show up within a few years of the ship's opening.[31]

In August 1969, a leak in the port side aft increased the rate at which *Wapama* normally took on water to 600 gallons per hour (gph). "In the strong afternoon winds," Dring reported to his park superintendent, "the rate increases to about 1,000 gph." The ship's two pumps could easily handle this amount, but two weeks later the leak had increased to 2,000 gph. It could not be repaired from within the hull, but Walter Schneebeli, an aquatic collector for the Steinhart Aquarium at the California Academy of Sciences and a member of the Dolphin Swimming and Boating Club located adjacent to Hyde Street Pier, volunteered to dive under the hull. He managed to locate the leak and staunch it with oakum and burlap, lowering the rate to 900 gph. Schneebeli's action bought time for the park to engage commercial divers to patch the leak more securely before it could be permanently fixed at the ship's next dry-docking, which ended up not happening until November of the following year.[32]

Dry-docking the *Wapama*—or the *C. A. Thayer* or *Eureka*, too—took a great deal of time to plan and implement because of the state's procurement and contracting rules. Nevertheless,

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[30] Delgado, *Revised National Register Nomination*, p. 8.5; Harry Dring, "Supplemental Detail Steam Schooner WAPAMA," Mar. 1978, 2, Dring papers, series 13, folder 4.

[31] Harry Dring, "Supplemental Detail Steam Schooner WAPAMA," Mar. 1978, 3; Zachary M. Reynolds, *S.S. Wapama Restoration Program*, Golden Gate National Recreation Area, June 1, 1984, I-1, copy in J. Porter Shaw Library.

[32] H. J. Dring, memo to Milton Frincke, Aug. 5, 1969; Dring, memo to David W. Redding, Aug. 21, 1969; Dring to Redding, Aug. 27, 1969, all Dring papers, series 13, folder 32.

The Wapama had a consistent and alarming leak rate of 4,000 gph in late 1964. The substantial reduction in this amount by the time of the 1969 leak is due to bottom repairs made during the 1967 dry-docking. "Report on Status of 1964–65 Maintenance Program," Oct. 30, 1964, Dring papers, series 13, folder 18.

the *Wapama* was hauled out for bottom cleaning, painting, and minor repairs four times while under state ownership: in late 1964, summer 1967, November 1970, and 1974. The first two dockings were at the Bethlehem Steel Shipyard, San Francisco, and the next two at the Merritt Ship Repair Company, Oakland (formerly Martinolich Ship Repair Company). Funding limits confined the repairs made in dry dock to greater or lesser amounts of bottom-planking replacement. For example, during the 1967 haul-out, a portion of the rub rail, the aftermost 43' of the keel shoe, and sixteen planks on the port and starboard sides ranging in length from 8' to 71' were replaced—expensive work that helped keep the ship watertight but did not address the increasing rot and weakness in the ship's frames, ceilings, and other structural timbers.[33]

Donation to federal ownership

Congress established the Golden Gate National Recreation Area (GGNRA) in October 1972 and authorized the placement of a diverse range of natural and historic resources in San Francisco and Marin counties under federal protection and National Park Service (NPS) management. Over the next decade, the Park Service worked to acquire properties within its authorized boundaries, which included the acceptance of donations of parkland from the state of California. Aquatic Park and Hyde Street Pier intentionally fell within the recreation-area boundaries, and, in September 1977, after much study and debate, the state donated San Francisco Maritime State Historical Park and its collections to the federal government. The next year, the San Francisco Maritime Museum Association transferred its Maritime Museum to GGNRA, along with the ship *Balclutha* and the paddle steamer *Eppleton Hall*. As for why the state and the private association made these donations, Karl Kortum said simply, "We followed the money."[34]

The state-park ships and the Maritime Museum's collections were consolidated as the "National Maritime Museum" within the large and complex recreation area. The ship-maintenance and museum staffs remained largely the same through the transfer in ownership, but the management structure above them changed entirely, bringing with it new budgeting, contracting, and procurement rules, as well as career Park Service managers initially unfamiliar with the particular challenges of historic-ship preservation. William J. Whalen, the founding superintendent of GGNRA before becoming the director of the NPS, told a congressional committee a few months after the Park Service took over the historic ships that he anticipated routine maintenance to be the largest expense for the government in operating the maritime park. "These are historical ships that are on the National Register, and they are incredibly costly as far as maintenance is concerned." Asked if the costs were

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[33] State of California, contract with Bethlehem Steel Co., Shipbuilding Division, Sept. 1, 1964; State of California, "Specifications and Special Provisions for Drydocking and Bottom Maintenance of Steam Schooner Wapama," Dec. 28, 1966; State of California, contract with Bethlehem Steel Co., Shipbuilding Division, Feb. 17, 1967; State of California, "Specifications for . . . Drydocking and Maintenance, Steam Schooner WAPAMA," Aug. 1970, all Dring papers, series 13, folder 2. State of California, "Specifications for . . . Drydocking, Bottom Maintenance, SS. Wapama," Feb. 1974, Dring papers, series 13, folder 23.

[34] Hal K. Rothman, *The Park That Makes Its Own Weather: An Administrative History of Golden Gate National Recreation Area* (San Francisco: Golden Gate National Recreation Area, 2002), 31, 33–35, 45, 49, 169; *Draft General Management Plan*, 4; Carl Nolte, "Historic ships are rotting away," *San Francisco Chronicle*, Nov. 23, 1987.

likely to go up, he said inflation would influence the cost of materials and skilled employees' salaries, but repeated that "maintenance will be the primary cost there." The potential for major and recurring restoration expenses was not mentioned.[35]

Hal Rothman's history of GGNRA notes that under NPS control, "maintenance and funding for the upkeep remained the primary issues" with the ship collection, just as they had been under state and private ownership. Although a 1978 law allowed the NPS to use rental proceeds from certain recreation-area properties to fund maritime-collection expenses, "maintenance costs of the ships were exorbitant and even with the addition of new revenues, money for upkeep remained scarce. As occurred throughout the park system, maintenance was deferred on the ships, creating a situation that meant that sometime in the future, the consequences of an established pattern of inadequate care would have to be faced."[36]

Interim measures to protect the *Wapama*, 1978–80

Although Rothman concludes that "the ships were an afterthought" within the sprawling recreation area with its many competing priorities, circumstances quickly presented the new managers with a demonstration of the preservation needs they faced.[37] The *Wapama* entered dry dock in late 1977 (once more at the Merritt Ship Repair Company) for its periodic bottom inspection and maintenance. Structural decay had grown noticeably in the last few years, and, when the ship was hauled out, the 16" hog was discovered to have increased to an alarming 30-1/8". The NPS called in marine surveyors Richard J. Lally and James C. Jessie to assess the ship's condition, and they documented serious overall deterioration throughout the ship. In particular, they confirmed the hog increase and found a crack in the keelson at frame 17. Their report concluded,

> The captioned vessel, apparently due to her inadequate mooring and the constant surge of the vessel and jerking of the offshore anchors in her present berth, shows an exaggerated hog which reportedly has almost doubled since the last haul out. . . . The main ship's timbers, being the bulwarks, the waterways, the deck stringers and stringer plates (on either side of the main hatch), and the keelson, all show structural failure which has allowed the exaggerated hog. It is possible after a great deal of structural rebuilding to properly load the vessel with no weight in the ends and all internal weight midships to keep her afloat for many years in her present museum status. . . .
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> The vessel at present is in danger of basically breaking in half unless some means can be found to protect her from the surge and anchor gear pressures presently acting on her.[38]

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[35] U.S. Congress, House, Committee on Appropriations, Subcommittee on the Department of the Interior and Related Agencies, *Hearings on the Department of Interior and Related Agencies Appropriations for 1979*, 95th Cong., 2d sess., 1978, pt. 6, p. 129.

[36] Rothman, *The Park That Makes Its Own Weather*, 169.

[37] Rothman, *The Park That Makes Its Own Weather*, 169.

[38] Lally, Healy, Hubenette & Associates, "Report of Survey, Steam Schooner 'Wapama,'" Jan. 20, 1978, 8–9,

The park had no funds programmed to make repairs of the scope the *Wapama* needed. Although more worm-damaged hull planking was replaced before the ship was refloated, the *Wapama* was simply returned to Hyde Street Pier in early April 1978. Staff members immediately began to plan for a restoration. Surviving memos indicate the maritime staff were well aware that government procurement procedures, which already made timely routine repairs to all the ships difficult, would slow any major project considerably.[39] They were also concerned about whether the GGNRA general leadership would give priority to the *Wapama* in funding requests and allocations. NPS Western Region historian Gordon Chappell told the Western Region chief of Cultural Resource Management,

> Because of the recent acquisition by the Service of the Hyde Street Pier and the Maritime Museum, because of the comparatively recent establishment of GGNRA and its rapid growth, and because probably of the change in management in GGNRA [a recent new superintendent], management does not yet seem to realize that it faces a very real danger of finding the Wapama at the bottom of San Francisco Bay some winter morning.
>
> The Wapama is a rare ship, the only one and last of its kind, and no decision other than its preservation is possible, professionally or politically, whatever the cost.
>
> I recommend that the Regional Director ask the General Superintendent [of GGNRA] to look into the problems with the Wapama and the Balclutha [the hull of which suffered severe corrosion] personally, and that he then reexamine GGNRA priorities with the Wapama especially in mind. I would particularly question why an extensive landscaping project [the creation of the Fort Mason Great Meadow], whose quick accomplishment is not as critical as the needs of the Wapama, is being funded, while Wapama preservation is not.
>
> The Service cannot afford to have the Wapama sink, and she is in very real danger of doing just that, unexpectedly and quickly, and if she does sink, she may be unsalvageable—she may literally break up in the process of sinking. [emphasis in original][40]

The *Wapama* remained open to the public at Hyde Street Pier through 1978. In response to concerns repeatedly voiced by Harry Dring that the ship might not survive another severe winter storm at the pier, work began on an interim arrangement to shield the ship from

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Dring papers, series 13, folder 4.

[39] "Development/Study Package Proposal, Historic Ship Management Plan Wapama," May 2, 1978, and Harry Dring, "Supplemental Detail Steam Schooner WAPAMA," Mar. 1978, both Dring papers, series 13, folder 4; Tom Mulhern, memo to Harry Dring, Jan. 4, 1978, Dring papers, series 13, folder 11.

[40] Gordon Chappell, memo to Chief, Western Region Division of Cultural Resource Management, Oct. 26, 1978, Dring papers, series 13, folder 11.

wind, wave, and tidal stress by securing it afloat within a partially drawn-down dry dock until restoration could begin. Although the plan inconveniently took the entire winter of 1978–79 to organize, it was nonetheless implemented, and on April 4, 1979, the *Wapama* was towed from Hyde Street Pier to a World War II–era submarine dry dock at Hunters Point Naval Shipyard that the park had leased from its then-operator, the Triple A Shipyard. "If it should sink it will not sink far," Harry Dring wrote of this plan. "From a management point of view if it sinks it will not occur in the Aquatic Park area." The management of Triple A made the dock available to the NPS from March to the beginning of October at a monthly rate of $3,000 ($6,000 for the first and last months), but said it would decline to bid on any restoration work on the vessel. This emergency berthing was paid for with $60,000 generated from rental of the park-owned Haslett Warehouse.[41]

With such a limited window in which to occupy Triple A's dry dock, the park explored other storage and protection options. Dring and his colleagues approached Mare Island Navy Yard for help, but were turned away. They discovered that no Bay-area commercial yard was willing to tie up its graving facilities for the length of time a restoration was anticipated to take. Furthermore, they also discovered that only Merritt still had wood shipwrights on staff. Construction of a dry dock on GGNRA land was discussed but found financially infeasible in the near term. The park opted, therefore, to place the *Wapama* atop a barge.[42]

Park general superintendent Lynn Thompson explained this approach in a February 1979 memo to the director of the Park Service's western region:

> Under this option we would obtain a steel barge and have support blocking constructed on the barge in conformity with the requirements for dry docking the vessel. The barge would be transported to Triple A Shipyard and placed in a large graving dock. Valve connections will permit the barge to be sunk when the dock is flooded. WAPAMA would then be shifted from the small graving dock [i.e., its protected berth] into position over the supporting structure on the barge. The barge would be pumped out and would lift the vessel. We would in essence create our own floating dry dock for WAPAMA. In this condition WAPAMA can be moved to a pre-selected berth for a

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[41] Quote from [Harry Dring], "WAPAMA. Condition," outline of short-term plan to protect the ship, early 1979, Dring papers, series 13, folder 11; Lynn H. Thompson, memo to NPS Western Regional Director, Feb. 22, 1979; National Park Service, equipment agreement to rent graving dock from Triple A Shipyard, Apr. 1, 1979, both Dring papers, series 13, folder 4; "Millions to make an old salt ship-shape," *San Francisco Examiner*, Apr. 5, 1979, 44; "The Wapama—history glides across the Bay," *San Francisco Progress*, Apr. 6, 1979, 16.

The *Wapama* was dressed for public exhibit with many articles of clothing, domestic objects, pieces of furniture, decorations, and ephemeral items. In March 1979, before the ship went to dry dock, park collections staff removed to storage those items subject to damage or theft. They also stored the panels used to interpret the ship for visitors. Susan Garfield, cover memo to David Hull, Apr. 27, 1979, and "*Wapama* Inventory Sheets," J. Porter Shaw Library pamphlet files, file: "Wapama (Museum ship)."

[42] Harry Dring, memo to Michael Stricklin, Jan. 5, 1979 [misdated 1978 on original], and Lynn H. Thompson, memo to NPS Western Regional Director, Feb. 22, 1979, both Dring papers, series 13, folder 11. Copies of the draft for Thompson's memo, dated Feb. 12, 1979, are in the same folder and as well as in series 13, folder 4.

> holding action until engineering for the re-building of the ship is completed, funds are available, materials are requisitioned, and required contract documents are processed for the actual work. The holding area for WAPAMA could be at Fort Mason or at a commercial shipyard site.[43]

This plan was estimated to cost $142,450 for the first year's barge rental and the necessary set-up of blocking and shoring, all to be paid for out of the cyclic maintenance funds already programmed for the *Wapama* for fiscal year 1980.[44]

The NPS arranged a monthly lease of Barge 214 from the Harbor Tug and Barge Company (part of Crowley Maritime) and paid to have it modified at Todd Shipbuilding to support the *Wapama*. Although the steam schooner was 17' longer than the barge, it was not regarded as a problem in the short term to leave the *Wapama*'s bow unsupported where it extended beyond the deck of the barge. The NPS was able to arrange an extension of the Triple A graving-dock lease, and on April 9, 1980, the *Wapama* was carefully placed onto the barge. About 17.5" of the hog was dropped out of the keel during this maneuver by setting the keel blocks to an appropriate profile.[45]

The *Wapama* and its barge were towed to the Pacific Dry Dock and Repair Company at Alameda in the Oakland estuary for storage until restoration began. They remained there for six years.

Restoration planning

The maritime staff at GGNRA began planning for a major restoration effort during 1979 and 1980 while the work to temporarily protect the *Wapama* went forward. Harry Dring had began discussing the need for a structural survey and analysis—to determine scope and costs—and a detailed restoration plan with naval architect Zachary Reynolds in 1978, and in May 1979 the NPS contracted Reynolds to do the survey and planning work.[46]

Reynolds presented his structural analysis in August 1979 and his specifications for reconstruction at the end of 1980.[47] In these documents, he specified replacing 35 percent of

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[43] Lynn H. Thompson, memo to NPS Western Regional Director, Feb. 22, 1979.

[44] Lynn H. Thompson, memo to NPS Western Regional Director, Feb. 22, 1979.

[45] Maritime District Ranger, memo to Business Manager, Apr. 8, 1982, Dring papers, series 13, folder 6. Barge 214 (length, 200'; breadth, 60'; depth, 12'; net tonnage, 1,255; maximum deck load, 1,500 lbs per square foot) is a steel ocean-going barge built in Jeffersonville, Ind., in 1970. Damaged and repaired in 1977, it was available to the NPS for rental because its owners no longer considered it suitable for ocean service. Tri-Coastal Marine, Inc., *Steam Schooner Wapama Historic Structure Report*, 1986, 111, copy in J. Porter Shaw Library; Hull and Cargo Surveyors, Inc., survey of Barge 214, 1979, Dring papers, series 13, folder 8.

[46] Zachary Reynolds to Harry Dring, Nov. 26, 1978; Lynn H. Thompson, memo to NPS Western Regional Director, Feb. 22, 1979; Department of the Interior requisition for professional services from Zachary M. Reynolds, May 17, 1979, all Dring papers, series 13, folder 4; "Wapama Negotiations," meeting notes, June 12, 1980, Dring papers, series 13, folder 10.

[47] Zachary M. Reynolds, "Specifications for the Restoration of the S S Wapama, a Timber Steam Schooner," Dec. 20, 1980, Dring papers, series 13, folder 26. A copy of Reynolds's "Scientific Survey, Phase I," Aug. 31, 1979,

the *Wapama*'s structural timbers in a multi-phase project to be carried out in three years or fewer. At a January 1981 meeting, Superintendent Thompson and other park officials quizzed Reynolds about his plan and the financial implications of *Wapama*'s poor condition. Reynolds said the restoration work needed to start as soon as possible or else further decay would increase the scope and cost of the project. He estimated that shoring up the hull; removing deteriorated structural timbers; making limited, targeted repairs to the most highly compromised areas; and putting the ship back in the water would cost between $2.6 and $3 million if the work were started within six months. If not, further decay would increase the cost to $4.5–$5 million in fiscal year 1984 or $6 million in fiscal year 1986. If 10 percent more of the hull would have to be replaced for every year of delay, the park faced rebuilding the entire ship from scratch in ten years at a cost of "possibly $10,000,000 to $12,000,000 in '80 dollars." GGNRA, however, had only enough funds available in its current budget to stabilize the ship, and the protracted nature of NPS funding requests and the federal appropriations process meant that specific restoration funds were unlikely to be securable before at least fiscal year 1984. "If appropriated funds cannot be obtained in a timely fashion to implement this alternative [Reynolds's restoration plan]," a park summary memo stated, "other methods of funding should be explored including grants, private fund raising efforts and conversion of the ship to commercial uses."[48]

Figuring out where to get the money for the repairs was not the only complication facing the *Wapama*'s caretakers. Harry Dring had watched the number of commercial shipyards capable of repairing wooden vessels dwindle in the years since the state park had opened. The Merritt Shipyard was the only local yard with a shipwright department skilled in wood repair, and it maintained that department only in order to service the older vessels operated by its parent company, Crowley Maritime. Merritt had been the sole company to bid on the *Wapama*'s 1977 dry-docking, and the only commercial concern Dring felt the park could now contract to do the *Wapama*'s repairs. The alternative was for the park to hire or train its own shipwrights directly. The other significant complication was the lack of a ready supply of timber in the dimensions necessary to replicate the vessel's enormous and unique original components. For previous repairs, Dring had had to order lumber from a broker in Eugene, Oregon, six months in advance of the work, and Reynolds now estimated six months to a year lead time for seasoned old-growth wood.[49]

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was not found by the author during the research for this report, but its contents are mentioned in an anonymous memo dated Jan. 8, 1985, in Dring papers, series 13, folder 5.

[48] Quote from "GOGA-C-1. Restoration Historic Ship S/S Wapama," unsigned memo, ca. 1981, Dring papers, series 13, folder 11. Michael Stricklin, "Memo to Files," Jan. 23, 1981, and Gordon Chappell, memo to Western Regional Director, Jan. 20, 1981, both in Dring papers, series 13, folder 10.

[49] [Harry Dring], "WAPAMA. Condition," outline of short-term plan to protect the ship, early 1979, Dring papers, series 13, folder 11. Michael Stricklin, "Memo to Files," Jan. 23, 1981, and Gordon Chappell, memo to Western Regional Director, Jan. 20, 1981, both Dring papers, series 13, folder 10.

Harry Dring wrote in 1978, "The writer has seen the slow demise of wooden ship repair capability since 1959 when WAPAMA was first drydocked. The work was done in a yard that subsequently went out of business in 1962 after some 60 years of operation (Moore Drydock Co.) Bethlehem Shipbuilding Division in SF also had WAPAMA and has recently phased out their shipwright department. Todd Shipyard in Alameda will not bid on wooden ships." Dring, "Supplemental Detail Steam Schooner WAPAMA," Mar. 1978, 5, Dring papers, series 13, folder 4.

A creative possibility for financing the *Wapama* repairs and other ship maintenance at the park appeared in 1981. The Hughes Mining Barge (HMB-1), a surplus property of the Department of Energy, was laid up at Todd Shipbuilding in San Francisco. This submersible barge, in essence a floating dry dock, had been built in the early 1970s to work in tandem with the *Hughes Glomar Explorer* in a secret Central Intelligence Agency operation to recover the sunken Soviet submarine *K-129*. Dring arranged for it and another floating dry dock, the 1944-built AFDL-38, to be transferred to the Department of the Interior in 1981 with the idea that they could be used to maintain the park's ships and when not in use could be leased out to generate revenue for further maintenance and repair. The advanced and relatively new HMB-1 was thought to have particular commercial appeal. "A proposal emerged," Superintendent Thompson wrote, "that in return for a long term lease of the HMB-1, a Maritime Company in the Bay Area [Crowley Maritime] was willing to provide up-front funding for the complete restoration of the Wapama and continuing funding for our Historic Ships."[50]

This was a lucky opportunity, but an act of Congress was needed to allow the Park Service to lease the barges to private entities and use the resulting income. The park sought one through NPS channels, but the authorization got folded into another NPS legislative request that then failed to progress beyond Office of Management and Budget review. A second attempt to forward legislation was made in 1982, but before it could progress, the navy requested the HMB-1 back in order to allow one of its contractors, the Lockheed Missiles and Space Co., to use it in the development of the *Sea Shadow* stealth ship.[51] This clash of government priorities scuttled one funding solution for the *Wapama*, although the park continued to seek permission to lease the AFDL-38. Congress finally granted this in August 1986, but the Secretary of the Interior declared that the minimum of $75,000 per year any leases were estimated to generate would be used to offset appropriated funds, and that "the actual funding of the restoration of the historic vessels will be sought through a combination of private donations and funds appropriated through our normal budget process."[52]

Further deterioration

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[50] Quote from General Superintendent, memo to Western Regional Director, Nov. 23, 1982, Dring papers, series 13, folder 11. "Briefing Paper. Wapama and HMB-1/Drydock. GGNRA," ca. 1982, Dring papers, series 13, folder 10.

[51] "Wapama Summary," ca. 1982, Dring papers, series 13, folder 10; Dale Champion, "Ship-saving deals that fell through," *Sunday Punch* (*San Francisco Chronicle*), Jan. 30, 1983, 3; Jim Douthit, "Steam schooner's restoration runs aground," undated clipping from the *Oakland Tribune*, Dring papers, series 13, folder 24; Maritime District Ranger, memo to Business Manager, Apr. 8, 1982, Dring papers, series 13, folder 6. "Barge requested in navy project," *Victoria* (Tex.) *Advocate*, Nov. 5, 1982, 9C; "Sea barge again gets secret duty," *Chicago Tribune*, May 30, 1983, 3.

[52] Public Law 99-395, Aug. 27, 1986. Quote from U.S. Congress, Senate, *Authorizing the use of funds from rental of floating drydock and other marine equipment to support the National Maritime Museum in San Francisco, California,* 99th Cong., 2d Sess., Aug. 1, 1986, S. Rpt. 99-361, 5. The same law that permitted rental income from AFDL-38 to go toward park maintenance needs also allowed the NPS to charge admission to its historic ships, although admission to *Balclutha* had been allowed since 1978.

Once out of the water, the *Wapama* continued to deteriorate. A twist in the bow that had developed before the ship left Hyde Street Pier—which Dring and Reynolds came to believe grew from damage sustained when the ship was still in service—accelerated on the barge, requiring the park in late 1980 to contract with Merritt Ship Repair to remove the *Wapama*'s anchor and chains, spare propeller, cargo winches, windlass, and foremast to the barge to lessen weight on the forecastle.[53] Fresh water from rain, pooling on deck and seeping into the superstructure and hold, hastened the spread of dry rot, while the lack of saltwater enveloping the lower hull caused the bottom planks to dry out, shrink, and spring loose from the frames. Three times a month, park crews drove to the ship to wash it down with saltwater, a remedy carried out for a few years that was only moderately effective.[54]

Because the condition of the ship continued to worsen, the park asked Zachary Reynolds to resurvey the hull in September 1982. Sections of hull planking were removed from the bottom to allow assessment of the frames; these removals, and others made later, had the additional positive effect of creating ventilation holes to improve airflow though the hold and bottom structure.[55] A few months later, in March 1983, the park sought another opinion and brought in Maynard Bray, the shipyard supervisor from Mystic Seaport in Connecticut. He inspected the ship accompanied by park staff members, Reynolds, and representatives of Merritt Shipyard, and concluded that the *Wapama*'s condition, on a scale of one to ten, was "about three." He advised covering the ship as soon as possible to reduce the effects of weather. "I recommend a simple, reasonably good-looking, fairly permanent shed with its sidewalls and ends supported directly from the deck of the barge . . . ." He then warned that a "decent restoration" would take six to ten years, not the two to three the park staff had been discussing, but if public access were arranged during the work and the ship were protected, there was no reason to do a "rush job." He thought the work should not be done at a commercial shipyard, however, as "the job is so far outside their normal line of work. Even Merritt Shipyard would have to hire on a largely green crew and go through OJT [on-the-job training]."

Finally, Bray made a note about overall cost.

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[53] National Park Service, equipment agreement with Merritt Ship Repair Co. for rental of 20-ton crane barge, Nov. 14, 1980, Dring papers, series 13, folder 4; Tri-Coastal Marine, *Steam Schooner Wapama Historic Structure Report*, 60, 131; "Wapama notes from Maynard Bray, Harry Dring, Steve Hastings, Zack Reynolds," March 1983, Dring papers, series 13, folder 27.

The components removed from the *Wapama* and placed on the barge remained there until removed to storage at Fort Baker in December 1986 or January 1987. (These pieces are extant today.) The ship's masts and booms (including two mast sections at Hyde Street Pier) were disposed of at the same time. Department of the Interior, requisition to Haviside & Heastings for removal of gear from Barge 214, Dec. 11, 1986, San Francisco Maritime National Historical Park Records (HDC 652), SAFR [hereafter cited as **SAFR records**], folder: "HK 045.017. Wapama. Gear Removal—Dec. 1986."

[54] Maritime District Ranger, memo to Business Manager, Apr. 8, 1982, Dring papers, series 13, folder 6. By 1984 the salt-water spraying was reduced to once or twice a month and was assigned to volunteers to do. A few years later the wash-downs were abandoned. See volunteer work-party flyers for February and March 1984, Dring papers, series 13, folder 8.

[55] Unsigned memo or memo draft, Jan. 8, 1985, in Dring papers, series 13, folder 5; Tri-Coastal Marine, *Steam Schooner Wapama Historic Structure Report*, 55.

> This is too complex a job and its scope is too uncertain to put a precise price tag on it by means of the usual fixed price bid. You can put a dollar value on the "knowns" as defined by a set of specifications and contract plans—but the "unknowns" (which usually appear as rotten wood undetected beforehand because it couldn't be gotten at for inspection) could push the final cost, via change orders, way above what was originally anticipated. With restoration work, I am a firm believer in finding someone who you have confidence in, contracting with him on a time and materials basis, and working hand in hand with him all the way along to get the kind of job you want and to get it done efficiently.[56]

Bray of course did not address how such a project could be accommodated within NPS procurement rules.

The deteriorating condition of the *Wapama*, sitting on its barge within view of traffic on the Nimitz Freeway, led to negative attention for the Park Service in the press, which also noted that decay was a problem throughout the entire historic fleet. "When the federal government assumed responsibility for the vessels of the Maritime State Historical Park in 1977," a *San Francisco Chronicle* editorial declared,

> it acquired a legal and a moral obligation to maintain the prized and unique exhibits. What has happened, in the instance of the steam lumber schooner Wapama, since has been inexcusable and disgraceful.
>
> The 205-foot vessel . . . has been high and dry on a barge in the Oakland estuary for almost three years. She is totally without maintenance, open to the elements and in a condition of accelerating decay. As weeks go by without meaningful federal action, the eventual costs of restoration are increasing.[57]

In reply, the GGNRA public information office wrote a careful press release in February 1983 that announced the park was planning to fund work on the *Wapama*. "GGNRA staff have identified areas of the park budget that could be redirected to the Wapama's restoration. Over a period of four years the amount could total 1.6 million. This money would be diverted from maintenance programs for historic buildings in GGNRA." The release mentioned the potential for authority to lease the AFDL-38, and encouraged the efforts of the National Maritime Museum Association (as the San Francisco Maritime

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[56] Maynard Bray, *Recommendations for the Steam Schooner Wapama*, Mar. 10, 1983, Dring papers, series 13, folder 17. A surviving set of notes from Bray's inspection records, "Maynard said the construction of the ship was awesome, it made [the whaler CHARLES W.] MORGAN look like a tinker-toy." "Wapama notes from Maynard Bray, Harry Dring, Steve Hastings, Zack Reynolds," March 1983, Dring papers, series 13, folder 27.

[57] "High and dry and sadly neglected," *San Francisco Chronicle*, Jan. 31, 1983.

Museum Association had become) to locate non-governmental funding sources. Lastly, it promised to solicit donations from the public.[58]

Shirwin Smith, the GGNRA public information officer, unhelpfully told a reporter for the *New York Times* that the *Wapama* suffered from "the ugly duckling syndrome." "If she were only a graceful square-rigger, we wouldn't have the problems we're having," she said. Lowell White, NPS Western Region acting director, was more diplomatic but equally candid: "It's just a matter of priorities and not enough money to go around."[59]

The 1984 restoration plan

The protracted funding delay obviated the idea of a two- to three-year restoration in a commercial shipyard. In 1983, the park administration engaged Zachary Reynolds again to revise his first restoration program into a phased project that could be done by park staff and contractors.[60]

"The Wapama's biggest problem is that its structure has deteriorated to the point where it is not adequate to carry the weight of the existing hull and machinery," Reynolds wrote. He outlined a program that could be carried out over a flexible period of years during which decayed and damaged structural components would be methodically replaced in a predetermined order that protected the hull from deformity and collapse. The ship's design would be replicated using original construction techniques to the extent possible, and the hog would be removed.[61] But Reynolds's program was going to be expensive because of the amount of the ship that needed to be replaced. He specified the replacement of

88.2 percent of the deck girders
84.8 percent of the waterways and lockstrakes
68.1 percent of the keel, keelson, rider keelsons, and sister keelsons
63.4 percent of the ceiling timbers
54.7 percent of the hull and deck planking
23.2 percent of the transverse structure such as frames, floors, knees, and deck beams

Repairs would be focused in three particularly deficient areas of the hull—frames 3–12, 12–42, and 58–68—but this meant 52 of the hull's 80 frames required work of some kind. The scope of the ship's decay was thrown into even greater relief when Reynolds wrote that only structural components that had lost more than 50 percent of their original strength would be replaced.

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[58] National Park Service, "Ship Saving Strategies. GGNRA Plans Funding for Wapama," news release, Feb. 16, 1983, J. Porter Shaw Library, pamphlet files, file: "Wapama (Museum ship)."

[59] "Ocean relic rots for lack of funds," *New York Times*, July 10, 1983,16.

[60] Glennie Wall to Zachary M. Reynolds, Feb. 5, 1984, SAFR records, folder: "HK 045.020. Wapama General"; Reynolds to Wall, Mar. 7, 1984, Dring papers, series 13, folder 5.

[61] Quote from Reynolds, *S.S. Wapama Restoration Program*, III-3.

Reynolds's work plan called for removing the pilothouse, fidley, deck house, and boat deck in order to allow removal of the engine, boilers, fuel-oil tanks, and most of the engine-room equipment, all to reduce stress on the hull and provide access to the inner hull structure. The forward 'tween deck and all the deck machinery would come out as well. While the work was underway, an enclosure would be essential to protect the dismantled ship from exposure to the elements. Reynolds estimated that his program would require $3.62 million: $900,000 to complete phase one during 1985 and $680,000 per year after that if the following four phases were done during years 1986–89.

Reynolds presented his revised proposal to the park on June 1, 1984. On June 7, Glennie Wall, the manager of the park's maritime unit, told the superintendent that she and her staff had "identified and allocated approximately $1,013,100 to begin the phased restoration of WAPAMA" during fiscal year 1985. Not coincidentally, the next day the park hosted a ceremony at the Franklin Delano Roosevelt Pier in Oakland to celebrate the designation of the ship as a National Historic Landmark. At the event, to which the *Wapama* was towed from Pacific Dry Dock and then returned, NPS officials announced the start of restoration and the availability of funding for at least the first phase. NPS Western Region director Howard Chapman praised Zachary Reynolds's plan and noted that "The task will be met, in addition to government dollars, with donations of time, materials, and money from the private sector." He also praised "the corps of dedicated volunteers" who had been meeting two Saturdays a month since the beginning of the year to paint and do small maintenance and repair jobs aboard the ship.[62]

Further delay

The NPS promptly contracted Reynolds to begin drafting the detailed construction specifications and working drawings needed to bid out the first year's work.[63] Nevertheless, three memos from January 1985 preserved in Harry Dring's papers reflect developing skepticism among park administrators about the scope and total cost of the new restoration program. One person felt the cost figures were "terribly optimistic" and that undertaking the restoration in-house would stretch the park's staffing resources. Another agreed with these two points and added that the fundamental idea of retaining any structural member having at least 50 percent of its original strength was flawed. "While this may be adequate reasoning on a steel or iron vessel where deterioration is not necessarily spread to contiguous areas by contact or proximity I find myself terrified at the potential thought of abutting sound wood to active rot spores." The third memo doubted that the park's

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[62] "H. Chapman presentation for WAPAMA dedication June 9 [sic], 1984, prepared by J. Delgado"; National Park Service news release, "Wapama Designated National Historic Landmark—Her restoration starts in October," May 30, 1984; Glennie Wall, memo to general superintendent, June 7, 1984; *Wapama* dedication schedule, June 7, 1984, all SAFR records, folder: "HK 045.010. Wapama Dedication." Shirwin Smith to Ian Peterson, Feb. 7, 1984, Dring papers, series 13, folder 5; volunteer work-party flyers for February and March 1984, Dring papers, series 13, folder 8; "Wapama," *Latitude 38*, May 1985, 110–11, copy in J. Porter Shaw Library, pamphlet files, file: "Wapama (Museum ship)."

[63] NPS, solicitation, offer, and award of contract for RPF 8140-84-R-003 to Zachary Reynolds, July 17, 1984, Dring papers, series 13, folder 28; Zachary Reynolds to Steve Hastings, Jan. 10, 1985, Dring papers, series 13, folder 29.

knowledge of the *Wapama*'s current condition was exact enough to proceed with Reynolds's plan. "[W]e have no adequate condition survey of the WAPAMA. While elements of Zachery Reynolds['s] S.S. WAPAMA Restoration Program are survey-like in nature, it provides us with no definitive document upon which to base such major commitments of time and money. The documents which I have examined tell us what is going to be done not what needs to be done."[64]

Glennie Wall decided, therefore, to delay restoration work until a thorough historic structure report (HSR) could be completed. Such a document, a standard tool in historic preservation planning, was designed to assess the vessel's exact condition as an historic object and propose and weigh a variety of options for its future care. Wall and others thought such a document would lay a firmer foundation for restoration as well as for public and private funding support.[65]

The park did implement one of Reynolds's recommendations and constructed a cover to protect the ship from rainwater. Reynolds, possibly working from Maynard Bray's suggestion, had proposed shielding the entire steam schooner under a roof supported on uprights rising from the barge. After some internal debate on what design to adopt, the park opted for a partial roof resting on the vessel's bulwarks that covered just the forecastle and main deck. Built by contractors in December 1985 at a cost of $98,000, the roof was made of wood and covered in nylon-reinforced plastic sheeting.[66]

From the outside, park management's decision to invest its limited funds in further studies instead of beginning restoration looked like inaction, and the press was quick to see a dire future for the entire historic-ships collection in the *Wapama*'s fate.

> The old vessels of the National Maritime Museum, administered by the National Park Service's Golden Gate National Recreation Area, make a pretty sight at their moorings on the San Francisco waterfront. But hidden and spreading rapidly beneath the spiffy paint and the gleaming brass and varnish are destruction and decay. . . . One vessel, the 204-foot Wapama, is a punky, sagging, evil-smelling mass of rotten timbers that rests these days on

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[64] Unsigned memo or memo draft, Jan. 8, 1985; "While I have no inherent feelings . . . ," unsigned memo or memo draft, n.d.; unsigned memo to Maritime Unit Manager, Jan. 24, 1985, all Dring papers, series 13, folder 5.

[65] Meeting notes from *Wapama* briefing for Superintendent Davis, Mar. 20, 1985, Dring papers, box 11, series 13, folder 29. The National Maritime Museum's 1988 nomination for the Advisory Council on Historic Preservation's National Historic Preservation Awards claims the Wapama HSR is the "first ever vessel Historic Structure Report produced"; *Wapama Preservation Program Awards Submission for the National Historic Preservation Awards, 1988*, copy made available to the author by SFMNHP historian Steve Canright.

[66] Rigger Foreman, memo to Maritime Unit Manager, Mar. 6, 1985, Dring papers, series 13, folder 5; meeting notes from *Wapama* briefing for Superintendent Davis, Mar. 20, 1985, Dring papers, series 13, folder 29; David Alcott, "Schooner takes step toward renovation," *Oakland Tribune*, Dec. 5, 1985, D3–D4; Dale Champion, "Historic goes to Marin," *San Francisco Chronicle*, July 9, 1986.

> a barge in the Oakland Estuary and has very little chance of ever floating again.[67]

Harry Dring, forced to retire in the summer of 1981 after a heart attack, had made the ship his "personal crusade" and fed the fires in the press. At times strident, he consistently linked the ship's worsening condition to the bureaucratic structures within the Park Service.[68]

> Get some ship people in there who know what these old ships need, then give them the resources to do it. It's never going to happen as long as these ribbon clerks are in charge. . . . These people they have calling the shots today just don't have the background for the job they have to do. They're all good people, but their background is in administration, paperwork, not old wooden ships. . . . Instead of getting to work, they just brought in these out-of-state consultants to study the problem while they did nothing.[69]

The 1986 Historic Structure Report

The "out-of-state consultants" Dring disparaged were the aptly named White Elephant Management, soon to be Tri-Coastal Marine, a naval architecture and consulting firm based in Galveston, Texas, that the park administration contracted with in 1985 to draft the historic structure report. Tri-Coastal surveyed the *Wapama* in late November and formulated treatment alternatives and recommendations based on what its surveyors found.[70] Its completed report, presented to the park in 1986, summarized the vessel's condition:

> The WAPAMA is presently in a state of advanced deterioration and attendant dilapidation for which there is no easy or quick cure. Rampant fungal decay is by far the most significant cause of this deterioration. . . . In the absence of ongoing maintenance, fungal decay has gone virtually unchecked since [1980]. At present, decay fungi permeate more than 80 percent of the Douglas fir structure.[71]

This decay was largely caused by the seepage and retention of rainwater within the ship.

> Drainage has become a problem because the WAPAMA is not trimmed by the stern, as she was when afloat. This means that the scuppers and drains are no longer at the lowest points in the deck and house tops, and standing

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[67] Walt Wiley, "Historic ships rotting away," *Monterey Peninsula Herald*, Dec. 3, 1985.

[68] Quote from James P. Delgado, "Is the S.S. *Wapama* Worth Saving?" *California Historical Courier*, Apr. 1983, 12.

[69] Wiley, "Historic ships rotting away."

[70] The surveyors, part of an eleven-person team credited with producing the *Wapama* HSR, were Capt. Guilford "Giffy" Full of Marblehead, Massachusetts—"a noted marine surveyor who specializes in wooden ships"—and Don Birkholz, Jr., of Tri-Coastal Marine; Tri-Coastal Marine, *Steam Schooner Wapama Historic Structure Report*, 142.

[71] Tri-Coastal Marine, *Steam Schooner Wapama Historic Structure Report*, 16.

> water results. This water eventually seeps down into the structure and the rot process begins.[72]

The surveyors found extensive brown- (or dry-) rot fungal decay in the components of the forecastle deck and the main deck, as well as in the ceiling timbers throughout the hold and engine compartment. At the same time, the report noted,

> The hull surfaces below the waterline appear in surprisingly good condition considering the age and length of time WAPAMA has been out of water. The bottom planking remains generally free of rot, probably due to residual effects of years of salt water saturation. . . . In contrast to the bottom, the topsides [hull surfaces above the waterline] are in very poor condition. Most planking above the waterline ranges from moderately to severely rotten. . . . Unless weather tightness of topside planking is achieved, rain will continue to enter through checks and open seams, resulting in continued decay of planking, framing, and ceiling.[73]

Because of inherent structural weakness, the surveyors found that the hull continued to distort while braced atop the barge. In particular, the forward 17' of the hull—the portion that projected beyond the forward end of the barge—was drooping. The overhang of the stern was also drooping, the main deck was sagging in way of the hatch, and the roof of the fidley was sinking under the weight of the smokestack. The engine was found to be in "generally good condition," but the boilers were severely corroded from water pouring in through the stack and wasted fidley trunk.[74]

Zachary Reynolds's 1980 and 1984 plans had focused on restoring the vessel to floating condition. Tri-Coastal argued this was no longer a viable option and confirmed park administrators' fears that a partial reconstruction would leave significant areas of active rot in the hull. "The ship would be in need of additional major repairs in a very few years, with the possibility that even the restored areas would become reinfested with rot." A complete rebuilding "would require replacing about 90% of the ship" and would be complicated by the four usual hobgoblins, the paucity of commercial yards equipped for wooden shipbuilding, the challenge of acquiring timber in the immense sizes used in the ship's original construction, the uncertainty of pinning down the final cost, and the need for funds.[75]

Tri-Coastal Marine recommended stabilizing the vessel and displaying it on shore.

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[72] ibid., 51.

[73] ibid., 55 & 58.

[74] ibid., 71–74, 61–62.

[75] ibid., 79, 80–81.

> The preservation of WAPAMA for museum interpretation, as opposed to her "restoration" as a floating vessel, stands out as the most realistic option for end use. WAPAMA has deteriorated to the point where true restoration would require an almost total rebuilding. Philosophical questions aside, the financial commitment this would demand appears beyond any level attainable in the foreseeable future. Were funding available on this scale, it might be better spent insuring that the other wooden vessels in the NPS fleet do not suffer a fate similar to WAPAMA's.
>
> The less ambitious goal of preserving WAPAMA as an artifact will, in itself, require a major effort. Arresting decay, supporting weak structure and devising long-term weather protection will need to be achieved on a large scale.[76]

"It must be realized that there is a certain minimum level of commitment below which the goal of long term preservation becomes unrealistic," Tri-Coastal warned. The authors of the HSR proposed this minimum to be $1.37 to $1.78 million for stabilization work over four fiscal years, which they contrasted to an estimated $8.1 million over four years that a complete rebuilding would require. They also recommended the assignment of a part-time staff member to tend to the *Wapama* regularly.[77]

The HSR killed the idea of returning the *Wapama* to the water, but its effect otherwise was limited. It restated the situation facing the park in great detail, but it could not solve the fundamental problem destroying the ship: the inability of the park, or of the broader Park Service administrative system, to program the funds necessary for the extensive work *Wapama* required. Only limited measures were possible within the park's annual budget. In December 1985, the park placed additional shoring between the hull and the barge and installed cribbing within the hold and forecastle to support the hatch beams and decks. About a year later, the park bid a contract to extend the keel blocking on a girder beyond the front of the barge, to better support the *Wapama*'s bow, and added more support for the funnel atop the corroding fidley. The park also hired a dedicated shipkeeper, Michael Harrington, to monitor the ship's condition and oversee all maintenance. But no progress was made toward securing funding for large-scale preservation work, either privately or through the appropriations process.[78]

The Bay Model Visitor Center

The mounting cost of mooring the *Wapama* and its barge at Pacific Dry Dock spurred a creative solution for storing the ship. In early 1986, GGNRA officials signed a cooperative agreement with the Army Corps of Engineers to moor Barge 214 at a corps' owned pier adjacent to the Bay Model Visitor Center in Sausalito. The Bay Model, a large three-

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[76] ibid., x.

[77] ibid., xi, 133.

[78] ibid., 104; Maura Thurman, "Rebirth of a maritime relic in Sausalito," *Marin Independent Journal*, Sept. 11, 1988, A3.

dimensional hydraulic representation of San Francisco Bay and adjoining waterways, was built in 1956–57 and expanded in 1966–69 to study water flow in the region. As a public attraction open to the public, the Bay Model site offered a way to bring the *Wapama* back into public view, even though public access was not initially felt feasible given the ship's condition. The *Wapama* was towed to Sausalito on August 1, 1986, where a public walkway was built to the ship and a wayside interpretive panel installed.[79]

Unit manager Glennie Wall and her staff took other actions to reduce costs as well. By the end of 1986, they had replaced the barge lease with a bare-boat charter, which reduced the monthly payments to $3,000, and within a year they had convinced Crowley Maritime Corporation to donate the barge to the National Park Service.[80] In a December 1987 memo, Michael Harrington reminded Wall that

> Not only do I seek alternative sources of supplies, materials and funds for WAPAMA, the volunteer crew has been successful in their own search. . . . We buy at discount stores, negotiate with contractors for the lowest possible price, scrounge the waterfront for all possible sources of goods or services. I pride myself in saying that this is the cost effective navy.[81]

The improved visibility of the ship at the Bay Model Visitor Center led additional people to volunteer for the weekend work detail.[82] Harrington, noting the many small safety-related projects underway by the volunteers, pleaded with Wall to

> Please think long and hard before cutting the WAPAMA funding. I believe that I can get more bang for the buck than anyone managing the accounts can. . . . The volunteers have more than paid their dues do not let them down as they have been in the past.[83]

San Francisco Maritime National Historical Park
The shortage of money to deal with the *Wapama* effected the rest of the park's fleet as well. The authors of Tri-Coastal Marine's *Wapama* HSR, seeing the ship as one object in a larger collection, warned, "The forces that reduced the WAPAMA to her present state are operating largely unchecked on the C. A. THAYER, EUREKA, and ALMA, with similarly predictable results." The *Thayer* suffered from hogging and dry rot. The *Eureka*'s decks leaked. The *Eppleton Hall* suffered from severe corrosion and rotting woodwork. Glennie

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[79] Tri-Coastal Marine, *Steam Schooner Wapama Historic Structure Report*, 131; Champion, "Historic vessel goes to Marin." Glennie Wall to Daphne Derven, Sept. 16, 1985; Department of the Army, docking agreement, n.d., both in SAFR records, folder: "HK 045.005. Wapama Bay Model Move."

[80] Bareboat Charter, Oct. 22, 1986; Deed of Gift for Barge 214, June 11, 1987, both in SAFR records, folder: "HK 045.000. Barge 214."

[81] Michael Harrington, memo to Glennie Wall, Dec. 18, 1987, SAFR records, folder: "HK 045.004. Wapama—Budget."

[82] Champion, "Historic vessel goes to Marin."

[83] Michael Harrington, memo to Glennie Wall, Dec. 18, 1987.

Wall told a reporter for the *New York Times* that proper maintenance would require a staff of forty-two and a budget of $3 million, but she only had a staff of twenty-three and a budget under $1 million. She told another reporter that it would take $19 million over five years to catch up with deferred maintenance on the historic ships.[84]

To address this problem, William Whalen, now executive director of the National Maritime Museum Association, lobbied for the introduction in Congress of a bill to split the maritime collections from GGNRA, under the belief that a separate maritime park would have a better chance of competing for appropriation dollars if it had its own budget line. This effort was successful, and Congress created the San Francisco Maritime National Historical Park in June 1988. Its first superintendent, William G. Thomas, was appointed the next year.[85]

Dry-rot treatment

During the creation of the historic structure report, Tri-Coastal Marine contacted specialists at the Forest Products Laboratory of the University of California at Berkeley about possibilities for arresting the dry-rot in *Wapama*'s timbers. While drying out the ship was the logical and best long-term solution, this would take many years, so an alternative was sought to kill the rot fungus in the meantime. Discussions led to sodium borate, a low-toxicity, water-soluble wood preservative typically used to control insects and fungus in commercial lumber. It was believed that controlled application of this chemical over a period of time would lead to it penetrating the timbers, stopping the rot and lending protection, but such a remedial application of the chemical had never been tried before on a structure as large as the *Wapama*. During 1987, employees of the U.S. Borax Corporation, manufacturer of Timbor, a commercial form of sodium borate, worked with shipkeeper Michael Harrington to develop a treatment regimen and create a semi-automated spraying system using off-the-shelf lawn-sprinkler parts and donated tanks. The system was installed in the *Wapama*'s hold in April 1988, and three times a day for a year beginning in May, it sprayed a 3 percent aqueous solution of sodium borate over the timbers of the main hold from frame 7 to frame 49. About 70 percent of the hull's structure by weight was covered, but areas aft of frame 49—the boilers and engine room—could not be treated due to the risk of corrosion damage to the ship's machinery. Supplementary spraying in areas not covered by the automatic system was done with a garden sprayer. A cofferdam and pumps on the barge captured runoff and prevented the chemical, hazardous to marine life, from entering the bay.[86]

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[84] Tri-Coastal Marine, *Steam Schooner Wapama Historic Structure Report*, 130; "Historic ships rotting at maritime museum," *New York Times*, Nov. 24, 1987, C12; Nolte, "Historic ships are rotting away."

[85] Nolte, "Historic ships are rotting away"; Public Law 100-348, June 27, 1988; Rothman, *The Park That Makes Its Own Weather*, 35, 264; *Draft General Management Plan*, 5; Senate, *Hearing on Maritime Museum*, 161–64.

[86] Brian Hamel to Stephen W. Hastings, Apr. 11, 1988, SAFR records, folder: "045.006. Wapama—Borax Treatment"; GGNRA General Superintendent, memo to Western Region Director, July 12, 1988, SAFR records, folder: "045.008. Wapama—Correspondence (General)"; Don Birkholz, Jr., "Steamship *Wapama* Finds a Cure: Remedial Treatment of Dry Rot in a Large Wooden Structure," *CRM Bulletin* 12, no. 4 (1989): 18–19; SAFR and Tri-Coastal Marine, *Report on the Use of Tim-Bor (sodium borate) for the Treatment of Decay in the Wooden Ship WAPAMA*, May 1991, SAFR records, folder: "Tri-Coastal Borax Report."

Comparison of wood samples taken before and after the treatments indicated that the density and penetration of Timbor was largely as desired, and that rot had been substantially arrested in the treated area. A report by Tri-Coastal Marine concluded, however,

> In the overall stabilization of WAPAMA's wooden structure, the Tim-Bor treatment can be considered only an interim step. Much of the vessel is still exposed to the weather and significant portions of the hull and superstructure remain susceptible to decay. In the long run, preservation of WAPAMA will be difficult unless she is placed within an encompassing structure that provides protection from ravages of wind and rain. . . .
>
> For the other wooden vessels of the National Maritime Park's historic fleet, as well as all floating wooden ships, the applicability of the WAPAMA Tim-Bor treatment method is felt to be minimal. The complex system used to apply the product on WAPAMA is cumbersome and there are problems with containment of runoff material. More important is the fact that sodium borate will leach out of wood that is frequently wetted, thus making the chemical less effective in protecting a structure that is constantly exposed to a moist environment, as most floating vessels are.[87]

The spraying system was dismantled and stored, and Harrington wrote to park superintendent Thomas that "the rot has stopped on WAPAMA but the job to save her is far from over. . . . The lack of funds and staffing has hurt WAPAMA more than any fungus. The priorities for stabilization are a new and more effective cover, selective plank replacement and an exterior coating to seal in the borate. . . . A commitment to preserve the ship must be backed with resolve to see it through."[88]

The 1996 Draft General Management Plan

Superintendent William Thomas decided, however, not to prioritize preservation and restoration of the *Wapama*. Faced with many preservation needs and limited funding, he directed his staff to focus efforts on the ships still in the water at Hyde Street Pier. This

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[87] Tri-Coastal Marine, *Report on the Use of Tim-Bor*, n.p.

[88] Michael Harrington, memo to William Thomas, July 2, 1991, SAFR records, folder: "Tri Costal Borax Report."

The borate treatment was one aspect of recent work on the *Wapama* that National Maritime Museum staff highlighted in a 1988 nomination they submitted for the Advisory Council on Historic Preservation's National Historic Preservation Awards. The nomination also singled out the volunteer program for notice, tabulating that 100 volunteers had collectively given 5,000 hours in 1987 and helped bring in $55,000 worth of donated supplies and materials. "Something magic has happened aboard this tired old vessel, very nearly abandoned by the National Park Service," the nomination declared. "Instead of dying a slow death in the Oakland Estuary, WAPAMA is in the public eye as an active living part of the Sausalito waterfront." The awards committee in Washington, D.C., agreed, and the *Wapama* project received one of that year's awards. *Wapama Preservation Program Awards Submission for the National Historic Preservation Awards, 1988*; Mina E. Wright to H. Thomas McGrath, Jr., July 25, 1988; Glennie Wall to Mina E. Wright, Oct. 3, 1988; copies of all made available to the author by SAFR historian Steve Canright.

approach became evident in 1996 when the park circulated for public comment its draft General Management Plan (GMP), a document meant to form a fifteen- to twenty-year guide for managing the stewardship and development of the park and all its resources.

The draft GMP laid out three alternatives for the future of the park. One of these was the preservation of the *status quo*, in which the *Wapama* would be maintained as long as possible without addressing its fundamental deterioration and then dismantled if it became unsafe. A second alternative looked to extensively "enhance" the park's landside facilities and called for specific deaccessions to focus the ship collection. The *Wapama* would be dismantled as soon as practicable under this scheme. The final alternative, the one the park put forward as its preferred management alternative, called for expanding the park's exhibition space and "emphasiz[ing] the preservation and maintenance of the park's resources, such as the fleet of historic ships, small watercraft, and library and archival materials."[89] The *Wapama* would be treated as in the *status quo* option:

> The *Wapama* would be retained on barge 214 as an interpretive display vessel. The ship would be relocated to a Bay Area site with compatible land uses, high visibility, and greater potential for visitation, such as Pier 32, Treasure Island, or Mare Island (Vallejo). Minimal measures to slow down *Wapama*'s deterioration would be implemented, but the vessel's underlying structural decay would not be addressed At such time that the *Wapama* could no longer be maintained in a safe condition, the ship would be dismantled.[90]

In a particularly gentle official turn of phrase, the plan continued,

> Eventual dismantling of *Wapama* would be an adverse effect on a national historic landmark. The National Park Service would consult with the Advisory Council of Historic Preservation and the California State Historic Preservation Officer . . . on ways to minimize this loss.[91]

This was not the first time the idea of dismantling the *Wapama* was broached within the Park Service. In 1988, during review of a fleet-management plan then being drafted to guide long-term care of the ship collection, Gordon Chappell, the NPS historian for the Western Region, wrote,

> [F]rankly, I see no value to attempting to preserve the WAPAMA as a hulk out of water at a cost initially of several million dollars and millions more for maintenance. Is this anything more than a bureaucratic ploy to keep from admitting that the National Park Service has destroyed this ship through ten years of neglect? Propped up on a barge under unsightly weather covers, she is a travesty of a historic ship. . . . I would rather see her recorded, exhibitable

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[89] *Draft General Management Plan*, 40, 43–44, 62, 76.

[90] ibid., 43.

[91] ibid., 43.

> pieces of her salvaged for use inside a museum, and the rest of her scrapped, than preserved as an unsightly hulk out of water. . . .
>
> Management should think about cutting our losses on the WAPAMA, admitting that the NPS has destroyed the ship through neglect, and get on with trying to save the others, and this report should be revised accordingly.[92]

This is precisely what park management did eight years later by laying out three alternatives for the park that all led to the loss of the *Wapama*. In another 1996 planning document, the park admitted that "only the *Alma* is regularly maintained at an acceptable level." (Its maintenance and that of tug *Hercules* were largely volunteer efforts.) The larger vessels—*Balclutha*, *Eureka*, *Thayer*, and, of course, *Wapama*—"suffer to a greater or lesser extent from a lack of adequate regular maintenance." The draft GMP's proposal to allow the *Wapama* to deteriorate, therefore, "represents an assessment by Park management that the measures required for her preservation will prove to be beyond the financial resources of the Park and the National Park Service, given other imperatives, both at the local and national level." As William Thomas told the *San Francisco Chronicle*, rebuilding *Wapama* would cost at least $18 million, while the bill for rehabilitation of the balance of the park's fleet would come to $16 million all together. Eighteen-million dollars "for one ship is an impossibility. We are having problems raising money for those vessels that can reasonably be fixed up."[93]

Thomas explained the park's decision more personally to maritime historian and folklorist Bob Webb:

> I first saw her discarded on the mud flats of Lake Washington [sic, Lake Union] in Seattle in 1954. I watched her being restored by Harry Dring and crew in Oakland in the 1960s. He regretted that he did not have the resources to do a complete job. I remember seeing her put on a barge in full expectation she would be quickly restored. Alas, she was not. Harry died, broken hearted by the sad condition of his ship. By the time I became Superintendent of the new maritime park, she was so far gone that I had to leave her and direct our attention to saving the rest of the fleet. It was a sad choice for the WAPAMA is undoubtedly the most significant vessel we have as relates to West Coast maritime history.[94]

The General Management Plan was adopted largely as written in fall 1997. The park's

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[92] Gorden Chappell, memo to Chief, Division of Park Historic Preservation, Western Region, Mar. 3, 1988, SAFR records, folder: "HJ 004.000. Historic Fleet. Fleet Management Plan."

[93] SAFR, *Resource Management Plan*, 1996, 22, 26, copy at National Park Service, Denver Service Center; Stephen Schwartz, "Historians seek to save schooner Wapama," *San Francisco Chronicle*, Oct. 30, 1996, A15. Reference to volunteer labor on Alma and Hercules in *Draft General Management Plan*, 15.

[94] William Thomas to Robert Lloyd Webb, Nov. 12, 1996, SAFR records, folder: "Wapama Incoming/Outgoing FY 97 'Save Letters.'"

required consultation with the Advisory Council on Historic Preservation led to a programmatic agreement that required the park to "explore the widest range of alternative measures for preserving the vessel" before dismantling it. There were to include, in preferred order, leasing the ship, working with government or private agencies to move the ship to "a site conducive to preservation and interpretation," or transfer to another "entity with the proven capability of funding and carrying out the preservation of the vessel." The agreement required the park to explore alternatives for at least two years before dismantling the ship, and it required the park to develop a marketing plan for leasing or transferring the vessel.[95]

The Pacific Steam Schooner Foundation

The most significant outcome of the GMP was the establishment in 1996 of a group initially called "Save the Wapama" but incorporated in 1997 as the non-profit Pacific Steam Schooner Foundation. Led by real-estate entrepreneur Edward G. Zelinsky; historian and National Maritime Historical Society president Peter Stanford; Rear Admiral Thomas J. Patterson, the leader of the successful effort to save the Liberty ship *Jeremiah O'Brien*; and John Kortum, the late Karl Kortum's son, this group aimed to raise awareness, fund-raise, and "develop and implement a practical plan for the preservation of WAPAMA." With NPS permission, it paid for yet another survey of the ship, in February 1997, which, although confirming the high degree of deterioration aboard, confidently asserted "that the WAPAMA is well within the range of preservation and long term and selective restoration." Based on this survey, the foundation enlisted Tri-Coastal Marine to develop another restoration plan. This time, Tri-Coastal recommended using cold-molded laminated wood components to replace the ship's old-growth timbers, a technique the company was then implementing in the restoration of the 1854 sloop-of-war *Constellation* in Baltimore.[96]

"Not all NPS personnel welcomed this 'outside' interest," Stanford has written, "but others, like the [park's] master rigger Steve Hyman, found this intervention inspiring and spent nights and weekends leading work parties that stabilized the ship." In fact, park staff came to mostly welcome the foundation's efforts because it revived (although only temporarily) the volunteer effort aboard and it provided a way for the park to meet the collaborative requirements of its programmatic agreement. By the end of 1997, the foundation had established a mildly productive working relationship with the NPS, secured a $50,000 grant from the National Maritime Historical Society, and enlisted Karl Brandes, a local shipwright, to work on *Wapama*. "I'll be here working every day," he told a reporter in 1998. By the end of 1999, the foundation had provided volunteer labor and materials to partly

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[95] SAFR, *Final General Management Plan / Environmental Impact Statement*, July 1997, ii, 39, 79–92;

[96] "NHMS Leads Fight to Save Schooner *Wapama*," *Maritime America*, spring 1997, 5; "Wapama," Pacific Steam Schooner Foundation brochure, ca. 1999, J. Porter Shaw Library, pamphlet files, file: "Wapama (Museum ship)." Captain Harold D. Huycke, Inc., *Survey Report. S.S. Wapama General Survey, Sausalito, California*, Feb. 1, 1997, and Save the Wapama, "World's Last Steam Schooner Wapama Given Two Year Reprieve from Scrapping by National Park Service," press release, Feb. 22, 1997, both SAFR records, folder: "Pacific Steam Schooner Foundation / Wapama." Tri-Coastal Marine, Inc., *Repairing the Steam Schooner Wapama*, June 23, 1997, copy in J. Porter Shaw Library.

waterproof the ship's decks and do other small maintenance.[97]

The *Wapama* is moved to Richmond

Nancy Rogers, the manager of the Bay Model Visitor Center, first raised safety concerns about conditions aboard the *Wapama* to superintendent Thomas in 1994. The park's *Wapama* volunteer program had disbanded in 1992 (it ran again briefly in 1998 and 2000), but the Corps had begun offering weekend public tours of the ship and was concerned about the many small repair issues that were developing through lack of maintenance. Although these were addressed, additional issues soon emerged, and Rogers warned Thomas that "the current state of disrepair and lack of attention cannot continue."[98]

Rogers suspended her staff's interpretive tours in July 1996 "due to the lack of sufficient maintenance and severe public safety and health hazards." A few months later, the Corps of Engineers' own San Francisco District Safety Officer closed the ship to all personnel "due to the public health hazard of excessive bird droppings." In light of the park's stated intention in the General Management Plan to only minimally maintain the ship with an eye toward its eventual disposal, the Corps asked the NPS in November 1996 to remove the *Wapama* from the Bay Model site.[99]

This eviction notice was smoothed over and the ship remained in Sausalito. But additional safety concerns emerged, and the notice to move was repeated in July 1999.[100] Lt. Col. Peter T. Grass wrote the director of the Park Service's western region,

> Ensuring both public and employee safety at our facilities is a responsibility that is of paramount importance. As the *Wapama* continues to age and given her structural integrity questions, risks are increasing to a point where we can no longer accommodate continued tenancy.
>
> While we support National Park Service preservation goals and the heroic efforts of the Pacific Steam Schooner Association [sic], we firmly believe that the *Wapama* should be berthed at a more compatible facility.[101]

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[97] Peter Stanford, "Historic Ships on a Lee Shore. Toward an American Ship Trust—If We're Serious about Saving our Heritage in Historic Ships," *Sea History* 117 (winter 2006–07): 28–29. Wayne A. Boykin to Thomas J. Patterson, Nov. 7 1997; Curator, Maritime History, memo to superintendent, Sept. 3, 1998; Edward Zelinsky and Thomas Patterson to Peter T. Grass, July 26, 1999, all SAFR records, folder: "Pacific Steam Schooner Foundation / Wapama." Mark Prado, "Historians cry out: Save the Wapama," *Marin Independent Journal*, July 22, 1998, B1; John J. Reynolds to Jane Crisler, July 18, 1999, copy provided by Steve Canright.

[98] Nancy Rogers to William Thomas, Nov. 2, 1994; "Meeting with National Park Service," agenda, Apr. 18, 1995; Ron Oakes to Rogers, Mar. 17, 1995; Mike Delano, memo to Thomas, Mar. 18, 1995; "Wapama Safety Findings," n.d.; John J. Rodriguez, "Memorandum for C, CESPN-CO," Mar. 22, 1995; quote from Rogers to Mike Bell, Apr. 19, 1995, all SAFR records, folder "Bay Model Stuff."

[99] Max R. Blodgett to William Thomas, Nov. 27, 1996, SAFR records, folder: "HK 045.005. Wapama. Bay Model Move."

[100] John J. Reynolds to Jane Crisler, July 18, 1999, copy provided by Steve Canright.

[101] Peter T. Grass to John Reynolds, July 6, 1999, copy provided by Steve Canright.

The park had neither money programmed nor a location arranged for such a move, and, despite the 1996 threat to evict the ship, this notice seemed to catch the park by surprise. Thomas told the office of Congresswoman Lynn Woolsey,

> I inquired what his safety concerns were as we had heard no complaints from his staff and were operating on his statement to the Regional Director [John Reynolds] at our meeting last November that the Wapama could remain at the Bay Model "as long as I am in command". He said that his district was undergoing a rigorous safety review as they had had five fatal accidents. He said it was not concern about the current safety of the ship but rather the perception that *she could become* a safety hazard in the future and they would not take that risk. . . . He continued to persist he wanted the deadline met.[102]

The Corps of Engineers' September 1, 1999, deadline for moving the ship proved impossible to meet, but the Corps was insistent that the ship be stored elsewhere. The park first considered moving the *Wapama* to Pier 54 in San Francisco. When that did not work out, the NPS negotiated a berth through the Richmond Port Authority. On October 4, 2000, the *Wapama* and Barge 214 were towed to the Port Potrero Marine Terminal and docked in one of the disused graving docks built during World War II as part of Kaiser Shipyard No. 3. The rent was $5,000 a month.[103]

An unsuccessful application for a Save America's Treasures grant in 2000 and the move of the ship to a less accessible berth in Richmond hampered the fundraising and volunteer efforts of the Pacific Steam Schooner Foundation. It dissolved a few years later.[104]

Additional planning, 2000–2011

Superintendent William Thomas retired in 2002. Although the park had no partnerships or options other than dismantling lined up to deal with the Wapama, the new superintendent, Kate Richardson, "was reluctant to dismantle an NHL vessel without being certain this was the only alternative it had."[105] Consequently, funding was found for an additional round of studies. Architectural Resources Group (ARG), a San Francisco firm, coordinated another condition survey, a document of preservation alternatives, and a value analysis to weight the various options against the park's needs and resources. Subcontractors BMT Designers & Planners of Arlington, Virginia, with Allen C. Rawls, Inc., did the majority of the work for the first two documents, presented in October 2005 and October 2006, while the Natural

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[102] Bill Thomas, memo to Tom Roth, July 15, 1999, copy provided by Steve Canright.

[103] Papers relating to the unsuccessful Pier 54 move are in SAFR records, folder: "Pier 54—Wapama." Peter Fimrite, "Last of Pacific Northwest's fabled schooner losing steam," *San Francisco Chronicle*, July 24, 2000; idem, "Sausalito landmark ships out," *San Francisco Chronicle*, Aug 31, 2000; "85-year-od steam schooner moved to Richmond," *San Francisco Chronicle*, Oct. 5, 2000.

[104] SAFR, *Disposition of San Francisco Maritime National Historical Park's National Historic Landmark {NHL} Schooner* Wapama – *Management Summary*, final draft, February 2010, 28–29, copy provided to the author by the park; Stanford, "Historic Ships on a Lee Shore."

[105] Quote from *Disposition of . . .* Wapama, 6; "First chief of Maritime Park retires," *San Francisco Chronicle*, July 20, 2002.

Resources Research Institute at the University of Minnesota Duluth and the Forest Products Laboratory in Madison, Wisconsin, collaborated on a scientific assessment of the ship's main structural members that was carried out in January 2006 and published in 2008. The value analysis, finalized in 2008, sprang from two days of meetings in November 2006 where numerous park staff, wooden-vessel experts from the wider maritime museum community, and ARG and BMT staff weighed the desirability and potential costs of various options for the ship.[106]

The superstructure was found to be little changed from its condition as described in the 1986 HSR, a fact the surveyors attributed to staff and volunteer efforts over the last two decades. The hull and main deck forward, however, "were found to be in an extremely deteriorated state." In its covering introduction to the surveyors' reports, ARG told the park that "there is little if any of [the *Wapama*'s] original hull materials that can be saved. The rot and loss of structural integrity are too great." For comparison, they noted that the *C. A. Thayer*, whose restoration had begun in 2004 after many years of seeking funding, required the replacement of about 85–90 percent of its original hull material. A similar severity of work was likely for *Wapama*, if the park desired to fully restore it now.[107] The following options were fleshed out and assigned likely price tags.

Alternative	cost, 2007 draft report	cost, 2008 final report
1. Full rehabilitation to floating exhibit	$36 million	$61.4 million
2. Stabilization of vessel on barge	$17 million	$21.7 million
3. Preserve bow, rehabilitated stern for display in a building	$25 million	$32.1 million
4. Rehabilitate exterior features for outdoor exhibit	$22 million	$31.2 million
5. Rehabilitate stern in a building, dismantle and salvage remainder	$12 million	$26.2 million
6. Partial salvage, disposal	$10 million[108]	$14.4 million[109]

[106] Patrick Naughton, Joseph Harrington, and Malcolm Willis, Wapama *Condition Survey*, Oct. 7, 2005, in Architectural Resources Group, *NHL Steam Schooner Wapama Condition Survey and Preservation Recommendations*, Phase 1a Final Report, November 2005; Patrick Naughton, Allen Rawls, Frank McGrath, *SS* Wapama. *Discussion of Options for Display and Preservation*, Oct. 31, 2006, in Architectural Resources Group, *NHL Steam Schooner Wapama Condition Survey and Preservation Recommendations*, Phase 1b Draft Options Report, October 2006. Copies of both reports are in SFMHPS library. Architectural Resources Group, *Value Analysis Study for San Francisco Maritime National Historical Park. Treatment and Preservation Options for the Historic Vessel Wapama*, Draft Report, August 2007, copy provided to the author by Steve Canright. Xiping Want, et al., *Condition Assessment of Main Structural Members of Steam Schooner WAPAMA*. General Technical Report FPL-GTR-177 (Madison, Wis.: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory, 2008).

[107] Naughton, Wapama *Condition Survey*, Oct. 7, 2005, 5, 8; Architectural Resources Group, *NHL Steam Schooner Wapama . . .* , Phase 1a final report, 3. The severely decayed hull of the *C. A. Thayer* was almost completely rebuilt in a hanger at Alameda between 2004 and 2007. Due to lack of funds, the ship was returned to Hyde Street Pier with the reinstallation of deck houses, masts, spars, and rigging incomplete. Most of this work remains incomplete as of 2011.

[108] Architectural Resources Group, *Value Analysis Study*, ii.

[109] Final report costs given in *Disposition of . . .* Wapama, 10.

The value analysis first identified alternative 5 as the park's preferred option, but upward revision of the estimated costs between ARG's August 2007 draft report and its 2008 final report led to the selection of alternative 6 as the preferred one.[110]

In 2009, park staff and their superiors in the Park Service's Pacific West Regional Office confirmed alternative 6 as the park's course of action, and funding was received to address safety and environmental concerns around the vessel while the park undertook a feasibility study for dismantling the ship, which would also serve as the foundation for a funding request to implement the ship's final demise.[111]

In 2010, the Historic American Engineering Record documented the ship's final condition. This activity supplemented large-format photography and a written history of the vessel created by HAER in 1988 and 2001, respectively. The 2010 documentation field-work including LIDAR scanning of the hull and computer modeling of the engine room and hull framing (all done to inform the creation of measured drawings), additional photography, and the research for this report.

In 2011, the park submitted its request for funding to dismantle the *Wapama*. When the ship is finally deconstructed, the park's collection will retain the vessel's engine and other machinery, its four lifeboats, and many of its interior fittings, in addition to representative pieces of its structure.

Conclusion

The inability of the federal appropriations process and of established planning and budget mechanisms within the National Park Service to provide money for the long-term preservation of the National Historic Landmark *Wapama* forms a cautionary tale about the immense cost and deep commitment necessary to preserve the large-scale artifacts of America's maritime heritage. All watercraft require continual maintenance during their time in service. Out of service, their need for maintenance continues, exacerbated by the effects of age, neglect, advanced decay, alterations, and, sometimes, previous restoration efforts. Successful maritime restoration projects usually have large price tags. The USS *Constitution*, for example, has undergone major restoration multiple times since the turn of the twentieth century, most recently in the mid 1990s at a cost of $12 million. (This ship benefits heavily from its continued status as a commissioned U.S. warship.) From 1996 to 1999, the owners of USS *Constellation* paid $7.5 million to replace rotten timbers and undo the damaging effects of an earlier, anachronistic restoration. The whaler *Charles W. Morgan* is currently undergoing a below-the-waterline restoration that is budgeted at $6.5 million.[112]

The situation the Park Service faces with the *Wapama* is part of a larger crisis in the maritime-heritage world that has led to many difficult choices in recent years. During the

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[110] *Disposition of . . .* Wapama, 10–11.

[111] *Disposition of . . .* Wapama, 11–12.

[112] David Holmstrom, "USS Constitution set to sail," *Christian Science Monitor*, Apr. 29, 1997, 10; Daniel LeDuc, "Shored up and shipshape," *Washington Post*, July 3, 1999, B1; Erin Richards, "The 38th Voyage: Breathing Life into the Charles W. Morgan," *Mystic Seaport Magazine* (spring 2010), 13.

1990s and 2000s, the Bishop Museum's Hawaii Maritime Center in Honolulu fell behind on preventative maintenance aboard the 1878 ship *Falls of Clyde* (see HAER No. HI-7). In 2007, facing a prospective $30 million in dry-docking and restoration costs, the museum announced its intention to sink the ship offshore if another home could not be found for it. A nonprofit acquired the National Historic Landmark ship in 2008 and is now struggling to raise needed funds. In 2010, the Independence Seaport Museum in Philadelphia announced its intention to scrap or sink the 1895 protected cruiser USS *Olympia* (also a National Historic Landmark; see HAER No. PA-428), again because of daunting dry-docking and repair costs. The ship's future remains uncertain. At the time of writing, the financially straitened Seaport New York (formerly the South Street Seaport Museum) is exploring the loan or sale its fleet of eight historic vessels to reduce operating costs, a move that could endanger the survival of its oldest ships. Abroad, the Scottish Maritime Museum, unable to raise money to restore the 1864 clipper *City of Adelaide* (ex *Carrick*) during the 1990s and needing to focus its limited resources on the other objects in its care, was granted government permission to deconstruct the ship in 2007. An eleventh-hour proposal by an outside group has halted the deconstruction temporarily while funds are sought to move the ship to South Australia.[113]

In addition to these endangered examples, there have been losses. The New England Steamship Foundation acquired the 1925 New England ferry *Nobska* in 1988 in order to restore it to service. The group secured the use of a dry dock at the Charlestown Navy Yard from the National Park Service, but over the course of a decade its members were not able to raise the money needed to complete hull repairs. Needing to free the dock for maintenance of USS *Constitution* and USS *Cassin Young*, the Park Service took over the ship and contracted to have it scrapped in 2006. David Brouillette, deputy superintendent of the Boston National Historic Park, told a reporter, "I don't think anyone wants to see her go. But we have to be very careful with whatever little funding comes our way. From a financial and a practical point of view, there is nothing we can do."[114]

The most salient recent loss of a heritage vessel is the lumber schooner *Wawona*, dismantled in 2009 by Northwest Seaport (NWS) (see HAER No. WA-14). The organization purchased this 1897 vessel in 1964 and maintained it for the public benefit until 2003, during which time it became the first vessel listed on the National Register of Historic Places. It also decayed beyond repair. Advised either to completely restore the vessel—with the replacement of much of its original fabric—or display it covered ashore, NWS determined that the schooner would completely deteriorate before the $10 to $20 million needed to effect either of these options could be raised, "resulting in a total loss with no opportunity to

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[113] Mary Vorsino, "Falls of Clyde gets new lease on life," *Honolulu Advertiser*, Sept. 30, 2008, A1; Christopher Pala, "Historic ship stays afloat, for now," *New York Times*, Oct. 19, 2008, A20; "Cruiser *Olympia*," Independence Seaport Museum Web site, http//www.phillyseaport.org/ ships_Olympia.shtml, accessed Apr. 20, 2011; Robin Pogrebin, "Seaport museum seeks berths for vessels," *New York Times*, Apr. 15, 2011, C3; Aline Reynolds, "Fighting to keep Seaport museum from sinking," *Downtown Express* (New York), Apr. 20–26, 2011; Scottish Maritime Museum, *City of Adelaide* Web site, http://www .scottishmaritimemuseum.org/index/php/city-of-adelaide, accessed Apr. 20, 2011.

[114] Deirdre O'Regan and Tom Carroll, "SS *Nobska*," *Sea History* (autumn 2004): 32; Jim Hickey, "Final farewell to historic steamer Nobska," *Vineyard Gazette*, June 2, 2006; Frederick N. Rasmussen, "Sad end for a venerable coastal steamer," *Baltimore Sun*, July 15, 2006, 2B.

document the ship or salvage significant artifacts." As a result, NWS thoroughly documented the ship's structure, removed large artifacts representing its construction and use, and proceeded to dismantle it. The organization's decision process was considered, deliberate, and transparent, and has allowed NWS to focus resources on its other historic watercraft.[115]

The loss of *Wapama* may well allow the Park Service to do same at Hyde Street Pier, beyond what it has already done with one fewer ship in the water over the last thirty years, but its record with the balance of its fleet in San Francisco is mixed. The scow schooner *Alma* and the tugboat *Hercules* are maintained in operational condition, while the *Balcultha* and the *Eureka* are each more or less sound. The *C. A. Thayer* is now structurally restored, but much work remains to finish the schooner for exhibit four years after it returned to public view. Finally, while the park's successful small-craft program contributed to the construction of a replica nineteenth-century Chinese shimping junk in 2003, the park now only minimally maintains the British tug *Eppleton Hall*, as doing so would divert limited resources from the maintenance of vessels deemed more central to the park's mandate to "preserve and interpret the history and achievements of seafaring Americans and of the Nation's maritime heritage, especially on the Pacific coast."[116]

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